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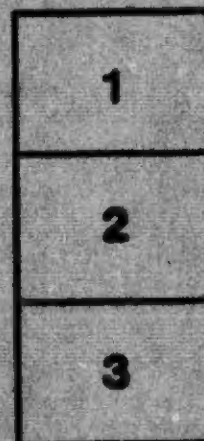
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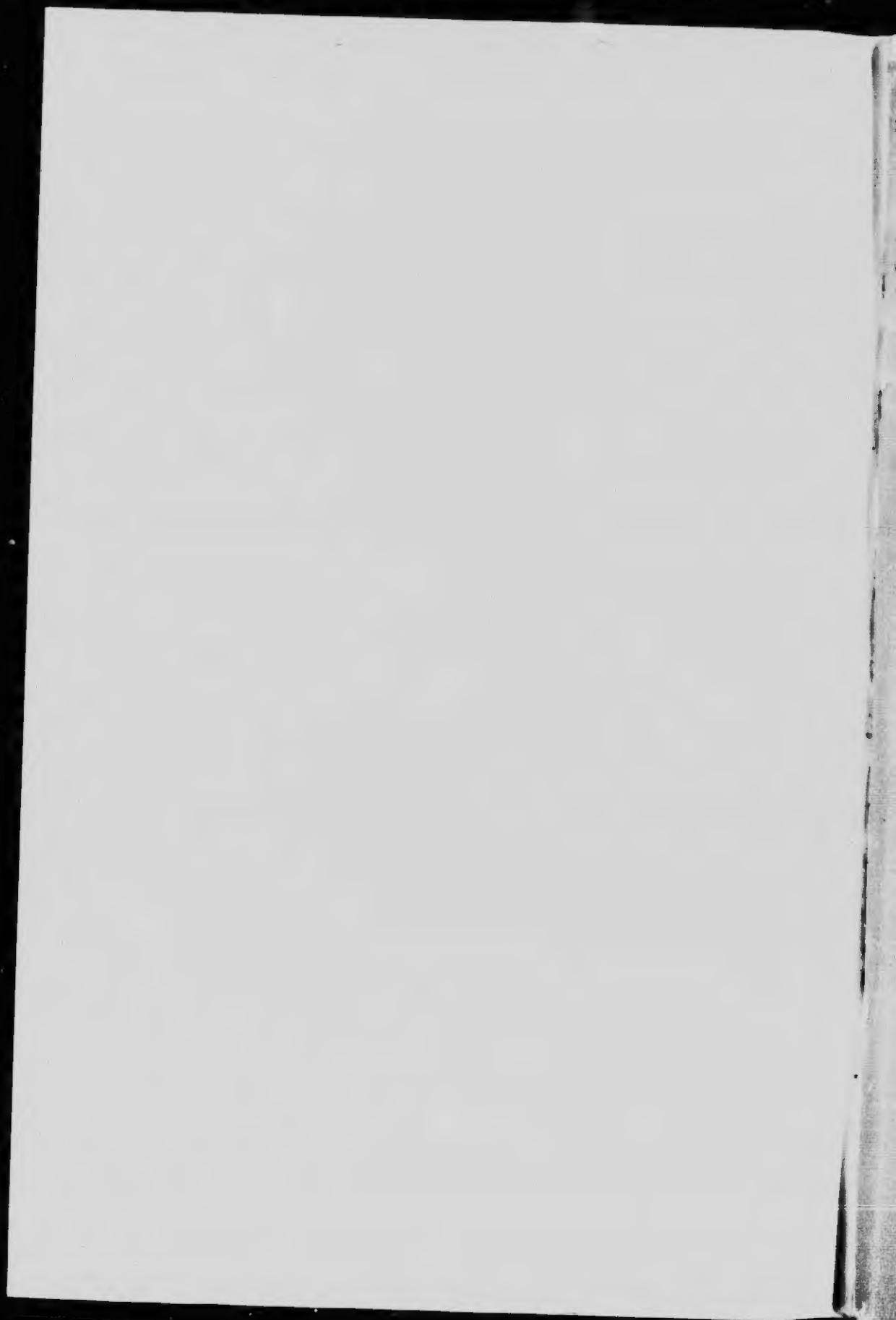
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CANADIAN PACIFIC RAILWAY COMPANY'S IRRIGATION PROJECT.



CANADIAN PACIFIC IRRIGATION
COLONIZATION CO. LTD.
CALGARY.
ALBERTA.
CANADA.

THE
CANADIAN PACIFIC RAILWAY
COMPANY'S
IRRIGATION PROJECT
IN THE
FAMOUS BOW RIVER VALLEY

ALBERTA
CANADA

A Handbook of information regarding this undertaking with
accompanying map

1907

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472.15

22120.2

The future home of the most closely
settled and prosperous mixed farming,
stock raising, and dairying community
in Western Canada.



HARWOOD LITHO. CO. LTD., CALGARY ALTA

127478



Headgates, Main Canal, Calgary.

THIS handbook is issued with the object of putting before the public the facts relating to the Canadian Pacific Railway Company's project, which, in the area of land affected, ranks as the largest irrigation scheme on this Continent.

The story is told so as to cover the subject as fully as possible, and so that the conditions as they exist may be clearly understood by the reader, the hope being that the facts herein stated will convey some idea of the immense possibilities of the undertaking from an agricultural, stock raising, and industrial point of view.



Company's Home Office, Calgary.

IRRIGATION



IRRIGATION, or the artificial application of water to insure crop production, is as old as civilization, and on this Continent was practised long before the discovery by Columbus or conquest by Cortez.

The earliest agriculture of which record exists was conducted under irrigation, and the idea of farming without controlling the moisture required by the crops is a much more recent development. The farmer on irrigated lands is not frightened by drought, the arch enemy of agriculture in nearly every portion of the globe, and is in a position to forecast results with some certainty. He is therefore a business farmer.

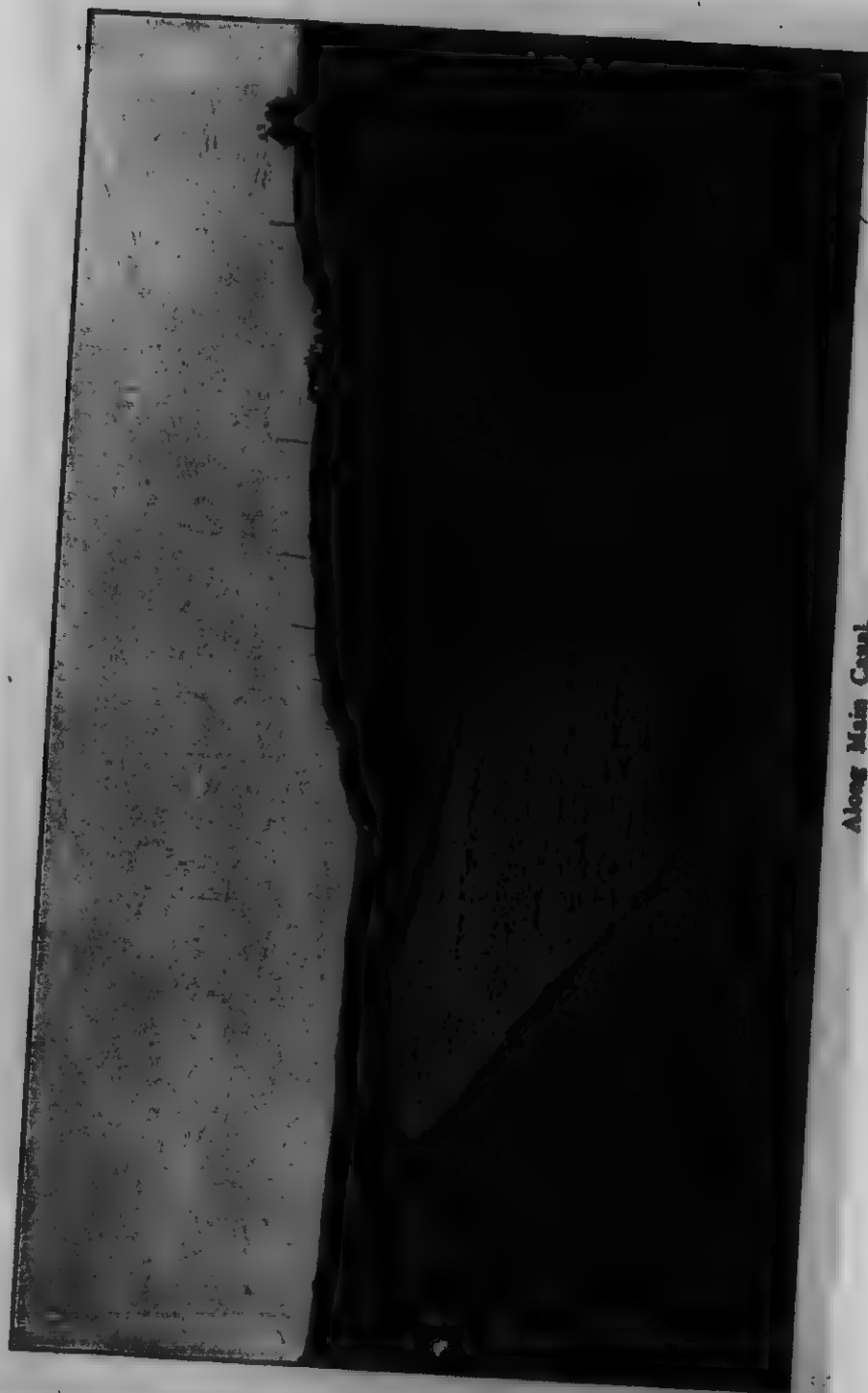
Irrigation, in the minds of the great mass of the people, is associated only with countries of extreme heat, poor soil and arid conditions, and is looked upon as a complicated and burdensome method of crop production.

Irrigation farming is simplicity itself. The most successful community of irrigation farmers in Southern Alberta to-day, is one composed wholly of settlers that never saw an irrigation farm before they came to the Province. To irrigate land does not require any more skill than it does to plough or harvest a crop, and contrary to the general idea, irrigation farming is not only scientific farming, but business farming.

The sprinkling of a lawn, the watering of a plant, is irrigation in its simplest form. Without it the lawns and parks, which give to city life a touch of nature's beauties, would be devoid of all that makes them attractive.

The great irrigation development in Western America has been the result of the efforts of people who migrated from the East and middle West with no knowledge of irrigation.

Probably the greatest boon irrigation has conferred on mankind is the practical demonstration of the profitableness of the small farm, acre for acre, as compared with the large farm. Southern Alberta contains as many striking instances of this revolution as may be found in the older sections. The day was when anything less than a section of land was looked upon as useless for a farm. From a section up to several thousand acres was considered none too large for the farmer. But that day has passed, and farms have gradually decreased in size until to-day, forty acres, well cultivated, will produce greater returns than 160 acres would under the old system. It can readily be seen



Along Main Canal.

the measure of prosperity that will certainly accrue to the country from the multiplication of small farms as compared with the holding of large tracts of land by individuals. Everything that follows in the wake of increased population is an argument in favor of irrigation, and the cultivation of small areas.

Irrigation has practically unified the sentiment of manufacturers, merchants and transportation agencies in the support of the propaganda of the small farm. The latter had its advocates fifty years ago, and some few isolated practical demonstrations; but with the mass even of intelligent men, it remained nothing but a theory. The business sympathies of the manufacturer and merchant were given to the man with the big farm, as being a large consumer, a better customer, a shipper of much freight. Now all these find it demonstrated by numerous prosperous communities, on every irrigated area, that a hundred farms of ten acres give them nearly a hundred times as much business as one farm of a thousand acres.

There is a general impression that irrigation is only useful in southern, hot, dry countries, and is not applicable as an aid to agriculture in northern latitudes. It was naturally first adopted in countries where, without the artificial watering of crops, their growth was impossible. But the principle has now extended until irrigation is practised more or less in every country, and even in districts of extreme rainfall it has been found of benefit.

Irrigation and fruit growing seem to be so interwoven in the public mind that it is often a difficult matter to secure an intelligent hearing for irrigation in districts where fruit growing is not the leading industry. It is argued that so much expense is necessary upon surface work and the application of water that the ordinary hardy forage and cereal crops will not yield a sufficient revenue to make irrigation a paying undertaking.

In considering the possibilities of irrigation in northerly latitudes, it is, however, well to bear in mind the fact that the State of Montana, where the conditions are almost identical with Southern Alberta, raises more agricultural products under irrigation than the States of Oregon, Washington and Wyoming combined; as much as the State of Utah, and half as much as the State of Colorado. Enormous irrigation development is now taking place in Northern Montana, by and under the direction of the United States Government, which will place that state in the front rank of irrigation countries. In fact, unmistakable evidence is visible on all sides to the effect that the largest area of irrigable lands in America will presently be located among the rich agricultural lands of northerly latitudes, and under sub-humid climatic conditions.

History of Irrigation in Alberta

WHEN the construction of the Canadian Pacific Railway was pushed across the great plains region of Western Canada, in 1882-83, scattered settlement followed closely in its wake. By the time the line had reached the foot hills of the Rocky Mountains, some of these settlements had been established in what is now the southern portion of the Province of Alberta, and from them the cities of to-day have grown.

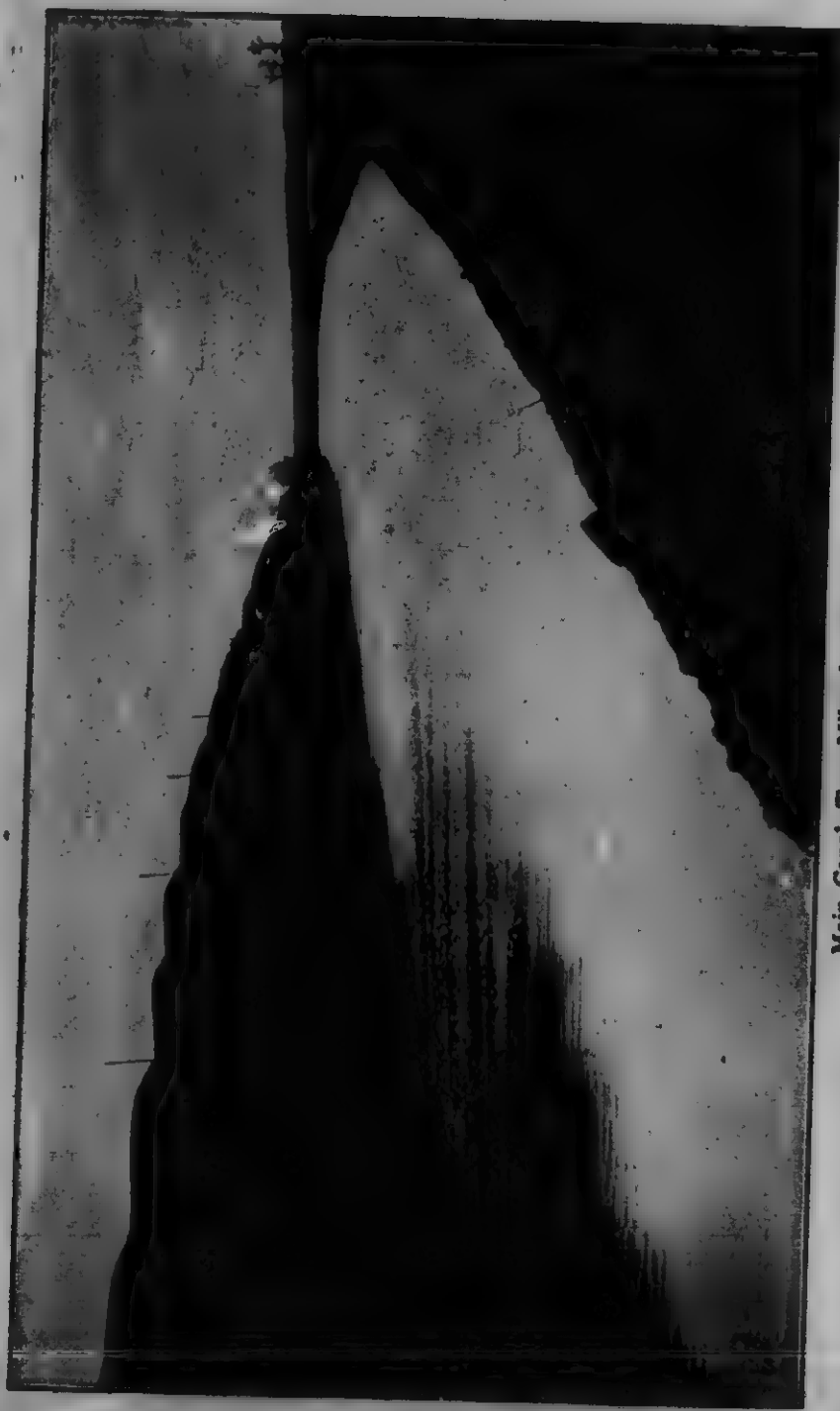
For many years stock raising was the only occupation of these settlements, the country having been found specially adapted to the grazing at large of cattle, sheep and horses during the whole year. But, by degrees, small areas of land were brought under cultivation, especially in the valleys along the many streams, and this fact proved that the country during seasons of sufficient rainfall was well adapted to the growth of grain, vegetables and fodder crops.

A series of dry years, commencing in 1892, with consequent crop failures, turned the attention of the settlers to the possibility of aiding the growth of their crops by the method of irrigation. Such marked success followed their efforts that general attention was directed to this method of extending settlement and insuring crop production.

The question finally assumed an importance to warrant its being taken up by the Government, and, after careful consideration, and examination of existing conditions in the irrigated States to the South, a well considered and comprehensive law relating to the use of water for irrigation was passed, a system of general surveys undertaken to determine the source and volume of the water supply available, and the location of the areas where such water could be used to the best advantage.

These surveys also served to locate the many small ditches which had been constructed, and finally developed the fact that two extensive areas offered special advantages for irrigation; one situated in the Lethbridge District, which could be supplied with water from the St. Mary's River, and the other, a large block of land east of Calgary, which could be irrigated from the Bow River. Preliminary surveys for the location of the canals to supply water to these areas were completed, and the first mentioned scheme was taken up and completed by the Alberta Railway and Irrigation Company, the second scheme is that area embraced in the project of the Canadian Pacific Railway Company, which is dealt with fully in this hand-book.

During this period many smaller canals and ditches were constructed as corporate or individual undertakings, and to-day there are in Southern Alberta and South-western Saskatchewan, outside of the Canadian Pacific Railway Company's undertaking, some four hundred



Main Canal, Two Miles from Headgate.



Deep Cut, Main Canal, Three Miles from Headgates.

and eighty miles of canals and ditches capable of supplying water to irrigate 625,000 acres.

The unusually wet seasons experienced during the years 1899-1902, gave irrigation a set-back, but the fact that crop production can be increased and insured during any year by the artificial application of water has now been so conclusively proved that irrigation has taken a permanent place in the rapid development which is now being experienced in Southern Alberta.

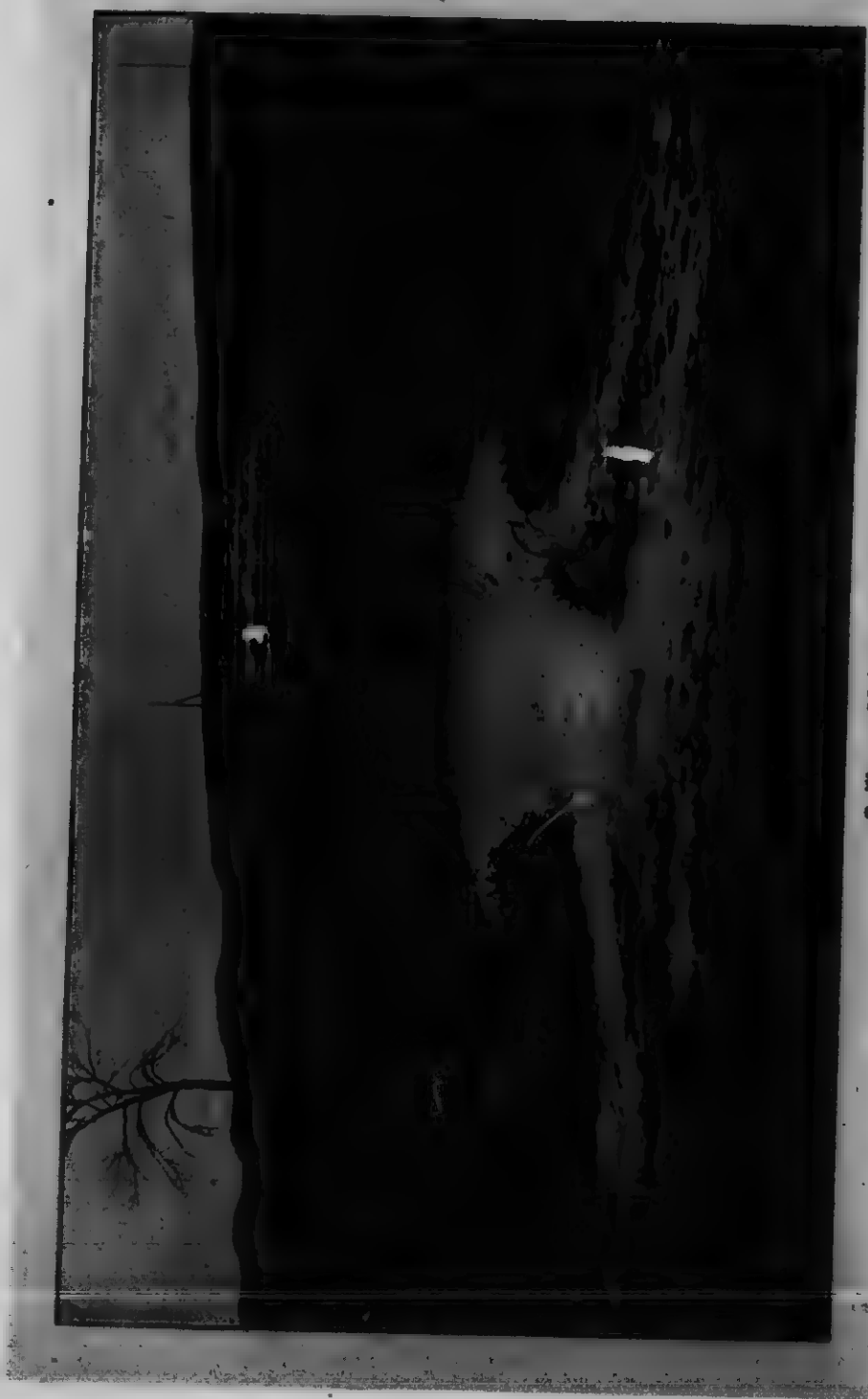
The history of this important phase of agricultural development in the Province, is, it will be noted, short. But it includes development along the lines of a well considered law relating to the use of water and the construction of irrigation works that have brought Southern Alberta into the first rank of irrigated districts of Western America.

The Aspect of Irrigation in Western Canada

THE following article taken from "The Farm and Ranch Review," Western Canada's recognized leading agricultural paper, will be of interest to prospective settlers, as the editor has farmed most successfully in Southern Alberta, both with and without irrigation:—

"A close study of the agricultural condition under which artificial watering is being practised throughout the world to-day, reveals the fact that irrigation is by no means confined to countries where the rainfall is so scant that nothing will grow without it. On the contrary, in many countries where irrigation has been brought to the highest state of perfection, the natural rainfall is very heavy. Indeed, there must always be contiguous territory of considerable precipitation, in order to produce springs and streams from which water may be diverted for irrigation purposes. The States of Iowa, Wisconsin, Illinois and Ohio, and the provinces of Ontario and Quebec, are generally supposed to be amply supplied with rain and snow, and able to produce excellent crops under ordinary culture without the artificial application of water. Yet, in all of India, except the north-western part, throughout China, Japan, Siam, Italy, France and Mexico, where millions of acres are brought under irrigation, the rainfall is quite as heavy as in the states and provinces mentioned, namely, from 23 to 51 inches per annum, which would generally be considered distinctly humid conditions.

"The United States Department of Agriculture at Washington, D.C., has carried on a very active irrigation propaganda during recent years, and has interested itself extensively in the question of increas-



Spillway, Meis Canal.

ing crop production in the eastern humid states by means of artificial watering. Professor King, who had charge of this work in the state of Wisconsin, has now completed his investigations, and has published the following conclusions bearing on irrigation in that state:—

1. The amount and distribution of rainfall in climates like that of Wisconsin are not such as to permit well managed soils to produce maximum yields.

2. No method of tillage now practised can very much increase the soil moisture above that which falls in the region as rain and snow.

3. Supplemental irrigation on heavy soils in climates like Wisconsin may increase the yield of hay from twofold to threefold; it may increase the yield of ear corn 25 to 35 bushels per acre, and of potatoes 80 to 100 bushels per acre.

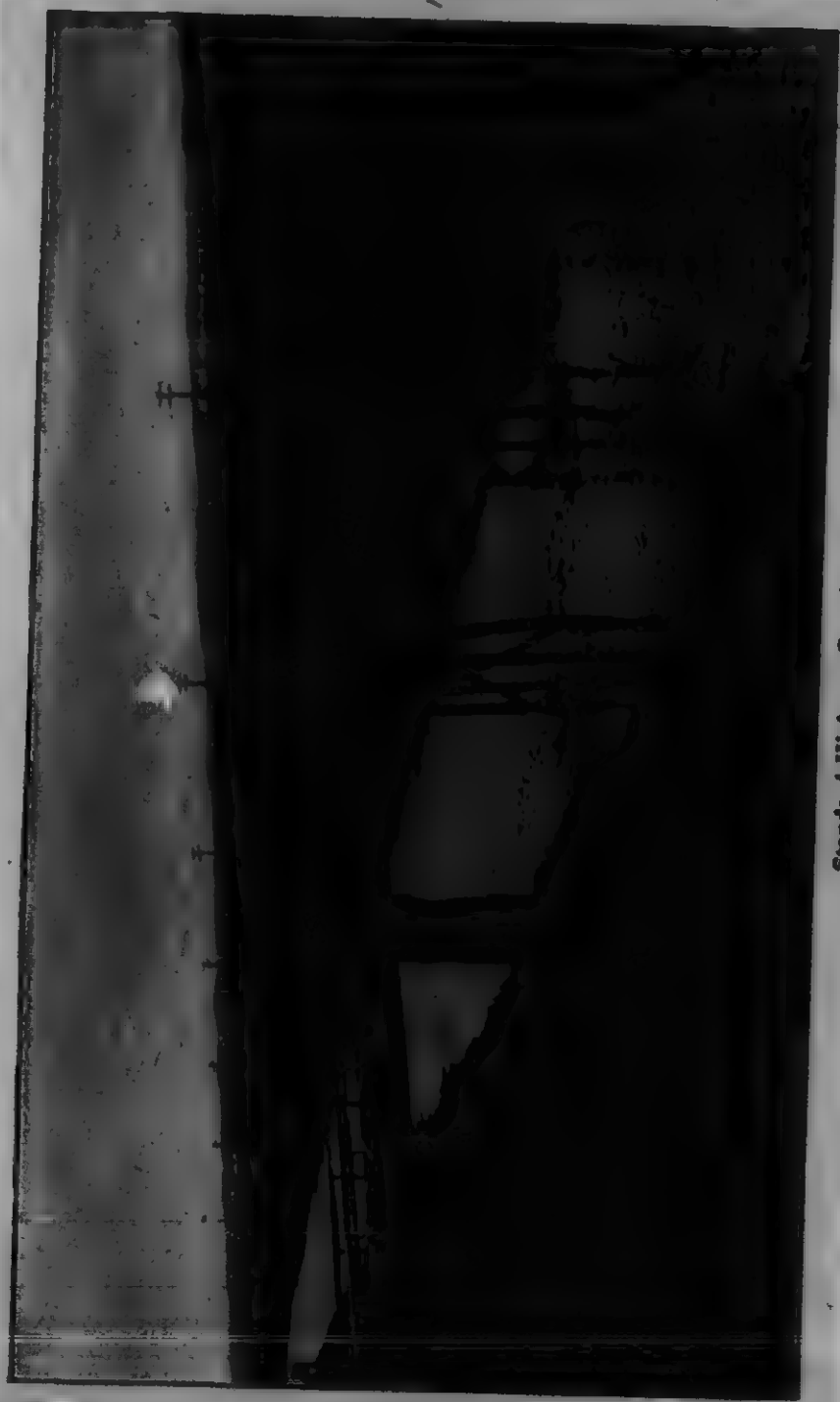
4. On very poor, sandy land supplementary irrigation may increase the yield of potatoes 50 to 75 bushels per acre, and of corn 9 to 15 bushels per acre.

5. The cost of irrigation per acre for the season was \$6.68 at Madison, and \$6.70 at Stevens Point.

6. The profits of irrigation at Madison, Wis., in 1901, on a clay loam, were about \$20 per acre on hay, \$11 per acre on corn, and \$73 per acre on potatoes. At Stevens Point, Wis., on sandy land, the profits were about \$30 per acre on potatoes.

"The above findings will make it clear that there is no district on the continent of America, however great the natural rainfall may be, where irrigation may not be profitably practised.

"The average rainfall during the past ten years in the provinces of Alberta and Saskatchewan, where irrigation by gravity is practised, is as follows: Calgary, 17.69 inches; Macleod, 13.18 inches; Medicine Hat, 15.83 inches; and Swift Current, 16.40 inches. The average rainfall of the state of Dakota is somewhat less, being over 10 inches, but under 20 inches per annum. The conditions in the irrigable portion of Western Canada are, therefore, such that there has been sufficient precipitation every year to satisfactorily produce and mature crops. But with the increase of population and prosperity more scientific methods of farming were naturally adopted, and the introduction of irrigation marks an epoch in the history of Western Canada. Even in the most humid countries it is seldom that a season passes where the application of water at the critical time in the growth of a crop, would not add considerably to the value of the result. This refers with equal force to the years of greatest rainfall. As a matter of fact, farmers now are not satisfied with returns more or less in accordance

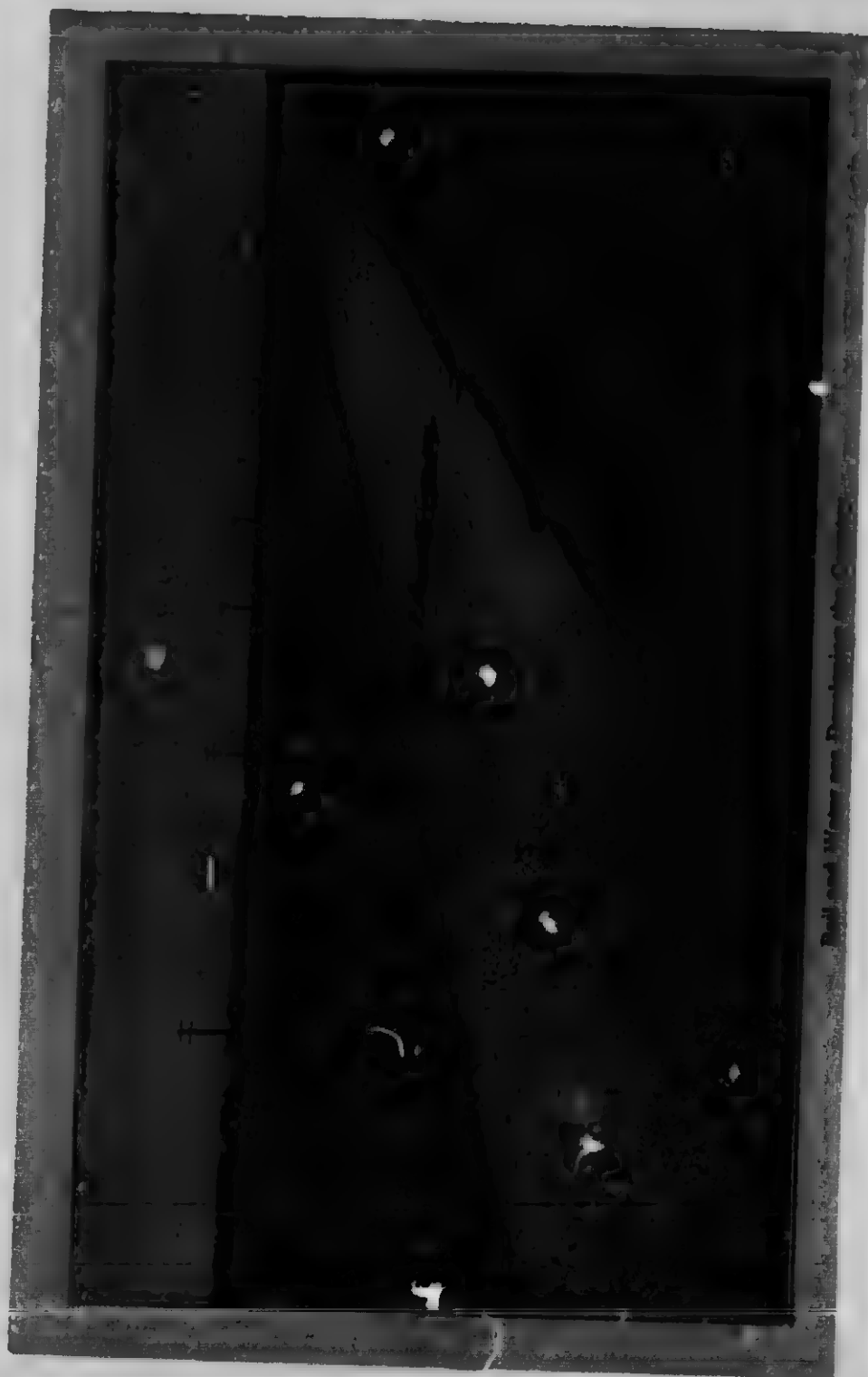


Standard Highway Crossing.

with the accident of rainfall, but are aiming at perfection in the development and maturity of their grain and hay crops. It is, therefore, obviously good business to utilize the means which have been placed at the disposal of settlers in districts favored with an adequate water supply, to supplement the effort of nature. Having water available in his ditch or reservoir, the irrigation farmer is able to distribute it on his land at such seasons of the year and in such quantities as experience has taught him are the most propitious to favorable results. He is not at the mercy of the capriciousness of the weather, and contends that crop growing without irrigation is a crude system, while irrigation farming is the most ancient, highly developed and natural system of culture.

"It is an admitted fact that the man who derives his living from cultivating the soil takes chances on the ultimate result of his efforts, such as prevail in very few legitimate branches of commerce. Weather conditions make or break him. It is, therefore, natural that where the conditions are favorable he should insure against untoward events. The tendency of the age is towards insurance. We insure against fire, against accident, and against death. It is a maxim in modern business management that every contingency must, as far as possible, be insured against. And the forecasting of the average result of every enterprise man embarks on, and consequently the possibilities of insurance, are daily extending. The farmer all over the world is rapidly adopting the principle. We insure against the death of live stock, and the destruction of crops by hail storms. In Western Canada we go a step further and insure against the absence of the necessary rainfall to produce the greatest possible crop. Drought is the arch enemy of the agriculturist in every portion of the globe where the soil is tilled and where crops are grown. Countries with the highest average rainfall have at times suffered an almost total loss of crop from the absence of moisture at the time of the growing season, when it was especially needed. Consequently, artificial watering of crops or irrigation, as it is commonly called, has been resorted to on a more or less extensive scale in nearly all countries where the natural conditions admitted of it.

"To sum the matter up, therefore, irrigation in Western Canada is not essential to the production of crops, but promises to increase the return from farming, that it is bound to become a leading factor in its agricultural development, particularly as the cost of irrigation, owing to favorable topographical and other conditions admitting of cheap construction, will be much smaller than anywhere else on the American continent."



Irrigation in Eastern States

WHILE irrigation in the Eastern United States is hardly known in its practical application, the following from the "Indiana Farmer" of July 28th, 1906, conclusively shows that its benefits are beginning to be appreciated there, and that irrigation is necessary certain years in every country:--

"Irrigation on a Small Scale"

After watching for years the successful operation of irrigation plants on a large scale in the West, the eastern farmers are taking up the practice on a small scale to help out the rainfall that in an ordinary season is supposed to be sufficient to raise crops. A report to the Department of Agriculture recently shows something of what is being done in this line, and the report is enough to encourage the farmers who have not taken up the practice to put in plants.

"The irrigation work in the east covers parts of Maryland and Pennsylvania, New York and some of the New England States. The plants are mostly in connection with truck gardens, for it is there that the returns per acre are the highest and the farmer can afford to spend more money for water than he can on less paying crops. Others of the eastern irrigators have to pump from wells and use expensive pipes overhead and underground pipes. But the results, as a rule, are that the irrigated farm pays about twice as much as that without irrigation.

"There are some wet seasons in the East when there is no need for irrigation at all. But there are some times when without artificial watering the crops would be a total failure, and then with the aid of irrigation crops mature as much as two weeks earlier, and, of course, bring much higher prices. Irrigation has been tried also on pasture lands, and the report that twice as much hay can be cut in a season off irrigated land as on that not irrigated, and that if the land is used for pasture twice as many head of stock can be grazed to the acre as on dry pasturage, and the feed is better. Berries and small fruits and celery and beets seem to pay particularly well for the added water given them. There are numerous instances cited in the report where the irrigation of a strawberry farm has made all the difference between success and failure.

"The report goes into many technical details as to the cost of pumping plants and the result obtained under various conditions in various localities."

The foregoing comment sounds the key note of the whole proposition—in very few words sums up the case for irrigation. Irriga-



Booting on Main Canal

tion "has made all the difference between success and failure." The difference between success and failure is as great as that which separates the two poles. Everyone prefers success to failure, consequently everyone prefers irrigation to dry farming. Irrigation is not a fad, but an absolute necessity for the insurance of a maximum crop every year.

The Canadian Irrigation Law

THE permanency of all irrigation development is dependent upon the law relating to the use of water. To the owner of an irrigated farm, the question of the title to the water to irrigate his crops, and certainty of its never failing supply, are of as much importance as is the title to his land.

In many states thousands of acres have been sold for irrigation that have never been supplied with a drop of water, and the only recourse of the purchaser was a long and expensive law suit. In fact, he bought a law suit instead of an irrigated farm.

It is claimed by competent authorities that as much money has been spent in many parts of the United States on litigation regarding water titles as has been expended in irrigation development.

In the United States a different law regarding the use of water is found in almost every State where irrigation is used to produce crops, and with the possible exceptions of Wyoming and Nebraska, none of these laws provide for that care in the appropriation and use of water necessary to provide permanency of title, supply and immunity from vexatious law suits.

In Canada the law relating to the use of water for irrigation has been framed to prevent the disputes and losses experienced by irrigators south of the International boundary, and has been declared by resolution of the American Irrigation Congress to be far in advance of any similar laws in the United States. The Irrigation Branch of the Department of Agriculture at Washington has issued a special bulletin calling attention to the meritorious features of the Canadian law, and setting it up as a pattern which should be adopted by States within which irrigation is practised.

The Canadian law is based upon the following broad principles:—

(a) That all water is the property of the Crown, and can only be acquired for irrigation by making proper application to the Government and obtaining authority to divert it; and that any person diverting it without first obtaining such authority shall be subject to a heavy penalty.

(b) That applicants for the right to construct irrigation works

must complete them within a stated time, and to the satisfaction of inspecting government engineers; that they must use the water for irrigation and sell the same at rates approved by the Government.

(c) That no stream can be burdened with more records (permits) for water than there is water to supply the land to be irrigated; this being prevented by refusal of the Government to grant any further records after the debit side of the ledger account opened by them for each stream shows that the credit of water supply, as indicated by yearly Government gaugings, has been exhausted by records granted.

(d) That the duty of water, or the amount to be supplied for any given area, (at present one cubic foot per second for each 150 acres) and the irrigation season, (May 1st to November 1st), during which period such water must be supplied, shall be fixed by the Government and not left to the power of any irrigation company or person selling water for irrigation to change.

(e) That all agreements for the supply of water for irrigation must be registered with the Government, so that they may have notice of the contracts entered into by irrigation companies.

(f) That any disputes regarding the division or distribution of water are settled by a Government official without the necessity of any appeal to the courts or bill of costs to parties making the complaint.

(g) That parties complying with the provisions of the law, and being granted right to divert water, obtain a patent for it direct from the Crown, which they can carry in their pocket, if they wish, as prima facie evidence of their title and an assurance that any attempt to interfere with such title will be prevented by Government officials without cost to owners of the water patent.

The best proof of the fairness and stability of the Canadian law relating to irrigation is the statement that although irrigation has been practised under it for ten years, and there are to-day, in Southern Alberta, eight hundred miles of canals and ditches carrying water for irrigation, not a law suit involving water rights has occurred during that period.

The canal constructed by the Canadian Pacific Railway Company to supply water to the lands now offered for sale has an absolute title under the Canadian law to two thousand cubic feet of water per second from the Bow River, and that river at the point of intake for the canal has never shown at its lowest stage, since Government gaugings were commenced some years ago, a smaller flow than three thousand cubic feet per second. During the irrigation season the flow usually averages about six thousand cubic feet per second.



Headgate, Secondary Canal A.



Headstones and Spillway on Secondary Canal A.

The source and volume of the supply are therefore assured, the title to the water is as good as the title to the land, and in addition the purchaser of an irrigated farm gets the guarantee of the Canadian Pacific Railway Company that they will supply him with water for all time.

This is the first time on the continent that water has been supplied for irrigation under such an absolute title and with such a guarantee as to its supply by the Company selling it. The purchasers of irrigated farms in this block need have no fear of encountering the disappointments as to water supply that have so frequently been experienced throughout the irrigated States.

The Canadian Pacific Railway Bow Valley Irrigation Project

A RAILROAD Company, to obtain a fair return upon the money invested in its undertaking, must of necessity look forward to developing traffic in all areas tributary to its lines, so that its motive power and car equipment may be fully employed.

It has already been explained that the vast area of three million acres included in the irrigation block, lies along the main line for 150 miles east of Calgary, and having accepted this area, the problem which confronted the Company was how to colonize it and make it traffic producing.

The Government had already, in a general way, proved that a large portion of the block could be irrigated, and, after giving the question of the results to be expected from the construction of an irrigation system careful consideration, the Company finally undertook, in 1903, the extensive and detailed surveys to indicate how the work could be carried out.

These preliminary surveys proved that about one-half the block, or 1,500,000 acres, could be irrigated, and served to indicate the probable cost of the undertaking. With this information before them, the Company finally decided to undertake this great work, and canal construction was commenced in 1904.

In developing the scheme this block has been divided into three sections, Western, Central and Eastern, of about one million acres each, and the work is being carried on along the lines of development of Sections in the order named.

In the Western Section about 350,000 acres are to be brought under irrigation, and the following brief description of the works to supply water for this area will indicate the character and magnitude of the work.



The water for the irrigation of the Western Section is diverted from the Bow River at a point about two miles below the City of Calgary. From there it is carried South and East through a main canal seventeen miles in length, which is sixty feet wide at the bottom, one hundred and twenty feet in width at the water line, and carries water to a depth of ten feet.

This main canal delivers water to a reservoir, for which a natural depression has been utilized, and where, by the erection of a dam, a body of water three miles long, half a mile wide, and forty feet deep has been created.

From this reservoir the water is taken out in three Secondary Canals, A., B. and C., and carried to the different districts which are to be irrigated. These Secondary Canals are about thirty feet in width on the bottom, at their western end and carry water to a depth of eight feet; their combined length being one hundred and fifty miles.

From these Secondary Canals the water is again taken out and distributed in each irrigation district through a comprehensive system of distributing ditches that bring the water to each 160 acres, or quarter section of land to be irrigated. The combined length of these distributing ditches is about 800 miles.

In the Western Section of the irrigation block, there will, therefore, be the following mileage of waterways constructed and maintained by the Company:

Main Canal	17 miles.
Secondary Canals A., B. and C.	150 miles.
Distributing Ditches	800 miles.
	<hr/> 967 miles.

In addition there will be several hundred miles of the small distributing ditches constructed by the farmers to distribute the water over their farms to the profit of irrigating.

The structures consisting of headgates, spillways, drops, flumes, measuring weirs, highway bridges, which are constructed on the Main and Secondary Canals and Distributing Ditches, run into the thousands, all of which are erected and maintained by the Company.

In completing the work in the Western Section of the block, the following amount of earth will be moved:

Main Canal	2,500,000 cubic yards.
Secondary Canals, A., B. and C.	5,000,000 " "
Distributing Ditches	750,000 " "
	<hr/> 8,250,000 cubic yards.

The preliminary surveys proved that about the same percentage of waterway and excavation will apply to the Central and Eastern



Sections, and the completed project will therefore stand about as follows:—

Main and Secondary Canals, and Distributing Ditches	2,900 miles.
Amount of material moved in completing the project	24,750,000 cubic yards.

The first intention was to divert the water for the irrigation of the Central and Eastern Sections from the Bow River by a second main canal heading in the river some sixty miles east of Calgary, but subsequent surveys have indicated that it may be found better to enlarge the present main canal and Secondary Canal B, in the Western Section, take out the water for the Central and Eastern Sections at the present intake near Calgary, and transport it through these enlarged channels to the districts mentioned. Detailed surveys are now being completed to indicate which is the better system to adopt so that a decision may be arrived at by the time construction work in the Western District is completed.

The ultimate expenditure on this great undertaking is estimated at about \$5,000,000, which taken in conjunction with the area of land in the block that it is proposed to irrigate, justifies the title given this scheme: "America's Greatest Irrigation Project."

The future success in operating an irrigation system must of necessity be dependant on the care exercised in the first instance in laying out and constructing the irrigation works. Realizing this fact, the Company has, in locating and constructing the Main, Secondary Canals and Distributing Ditches, exercised an unusual amount of care in order to reduce the chance of break in the banks, or delay in the delivering of water, to a minimum. The manner in which the work is being performed led to the following statement by Dr. Elwood Mead, Chief of Drainage and Irrigation Investigations, Department of Agriculture, Washington, the leading irrigation engineering authority on this Continent:—

"The chief problem of the main canal was to build a waterway which would be free from leaks and all danger of breaks. The precautions which have been taken to insure this are greater than those usually observed. The specifications for stripping the surface soil and packing of embankments are rigorous, and are being lived up to in all the work I inspected, and I have never seen more compact or uniformly solid banks than those being built."

The same care has been followed in the design and construction of the main headgates and all the other structures on the main and secondary canals, and possible delays and mishaps in the delivery of water from washouts and weak structures have been overcome, so



Irrigation for Stock Watering Purposes

far as it is possible, in the works connected with the Western Section of the irrigation undertaking.

The Canadian Pacific Railway Company's irrigation project differs from the other irrigation undertakings on this Continent in certain main features that are deserving of special mention.

In the first place, the project has been undertaken for the definite purpose of transforming a large area at present unsettled and non-traffic producing, into a closely settled and prosperous farming community, with the attendant traffic receipts that always result from such districts. For this reason the scheme has not been undertaken to make money from the irrigation project itself, but as a colonization and future traffic producing investment.

Following this basis the Company has departed from the usual practice on this Continent of building only the Main and Secondary Canals to bring the water to the area to be irrigated, then leaving it to the purchasers of the irrigated lands to get together and build the Distributing Ditches to deliver the water to the individual farms. In this undertaking, not only the Main and Secondary Canals are built, but, also, the vast system of distributing ditches so as to provide for delivery of the water at some point on each quarter section of irrigable land offered for sale. The purchaser of such land can see on the map from which he buys his land, exactly where the water is to be delivered to him, and need be at no bother as to securing the co-operation of his neighbors in building and maintaining the ditches to bring the water to his farm. This is a departure which appeals strongly to settlers from irrigation districts who are acquainted with the trouble and expense met with where the usual practice is followed.

Another feature of the Company's undertaking which marks it as differing from other irrigation projects on this Continent is, that the maps from which lands are sold, show in plain figures on each quarter section, the area which is irrigable, this information being derived from the exhaustive contour surveys carried on by the Company. The usual practice is to call all land having a lower general elevation than the ditch supplying it with water, irrigable land, without going to the expense of proving by actual and detailed surveys exactly how many acres of such land can be irrigated by the economical distribution of water.

Having undertaken to deliver the water at some point on the boundary of each quarter section of irrigable land sold, and selling such land from a map which shows from detailed survey exactly how many acres of such quarter section can be irrigated with water supplied at that point, the Company goes a step further and provides for

a ten per cent. reduction in such irrigable area, in the annual charge for water, so that portions of the irrigable area used for buildings, roads, etc., are not charged for water which cannot be used.

The forgoing special features are unique in connection with irrigation undertakings on this Continent, and will, it is thought, appeal strongly to those who may contemplate purchasing irrigated lands in the Canadian Pacific Railway Company's block.

The Bow River Valley Irrigated Lands

THE area embraced in the Canadian Pacific Railway Company's irrigation project in the Bow River Valley comprises a block of three million acres situated east of Calgary along the main line of the Company's railway.

The block, as it is commonly called, is bounded on the west by the Fifth Meridian, on the south by the Bow River, on the east by the line between Ranges 10 and 11 West of the Fourth Meridian, and on the north by the Red Deer River and the north boundary of Township 28. It has a length east and west of 150 miles, and an average width north and south of 40 miles. Probably the most striking way of illustrating the magnitude of the area embraced in this irrigation block, is to offer some comparative facts. It is larger than the States of Connecticut and Rhode Island combined. It is twice as large as the Province of Prince Edward Island. It is one-eighth the size of England and Wales; about the same size as the Hawaiian Islands, and twice the size of the Island of Porto Rico.

The area of land to be placed under irrigation within the block is five times as large as the irrigated area of the State of Utah; greater than the irrigated area in the State of California; equal to the total irrigated area in the State of Colorado, and greater than one-fifth the total irrigated area of the United States.

When the Canadian Pacific Railway was built, a bonus of twenty-five million acres of land was given to aid in its construction. This land was granted on the usual checker board system of the odd sections in a belt twenty-four miles wide on each side of the line from Winnipeg to the Rocky Mountains. But the Company had the privilege of rejecting the land in any district which was not considered "fairly fit for settlement." Taking advantage of this provision, the Company refused to accept much of the land between Calgary and Moose Jaw because the indications were that without irrigation this district did not offer opportunities for successful settlement. Finally when a settlement of land grant matters was effected between the Government and the Company, there was a balance of some three



Water and Grass Produce Bed.

million acres due the Company, and they agreed to accept the irrigation block to cover this balance, provided it was given in a block to include the even and school sections as well as the odd sections. It has already been explained that the Government had completed the necessary surveys to prove that water could be obtained from the Bow River for the irrigation of this Block, and the Company signified their willingness to undertake the construction of the irrigation works, if the block were granted them. This arrangement was finally consummated, and the Company are now engaged in building the canals which will ultimately irrigate fifteen hundred thousand acres, or one-half the total area of the block.

The block is an open prairie plateau with a general elevation at its western boundary of 3,400 feet above sea level, and slopes rapidly to the East until an elevation of 2,300 feet is reached at the Eastern boundary. The surface throughout is more or less rolling until the eastern section is reached, where large areas of almost level plains are found.

The whole block produces a most luxuriant growth of nutritious native grasses, and the natural grazing is such as to permit of the grazing at large of cattle, horses and sheep throughout the whole year.



The Soil of the Bow Valley

THE soil throughout the whole of the irrigation block is first-class, with a heavy, black loam and clay sub-soil in the western portion, and a lighter sandy loam, with good sub-soil, in the more easterly parts. It is fresh from Nature's laboratory. It has not been taxed nor exhausted, and contains almost incredible possibilities. On this soil crops spring up in wondrous luxuriance under the combined influence of the gracious Southern Alberta sunshine and a bountiful supply of water. The wonderful fertility of the soil becomes a magic tale to farmers of other sections who learn of the marvels wrought here by nature and irrigation.

Unlike some sub-humid countries, Southern Alberta is free from cactus and sage brush, and settlers find the land ready for the plough with no expense of \$3 to \$5 per acre for clearing.

The following extracts from reports made by experts in their various lines will give some idea of what they think of the soil.

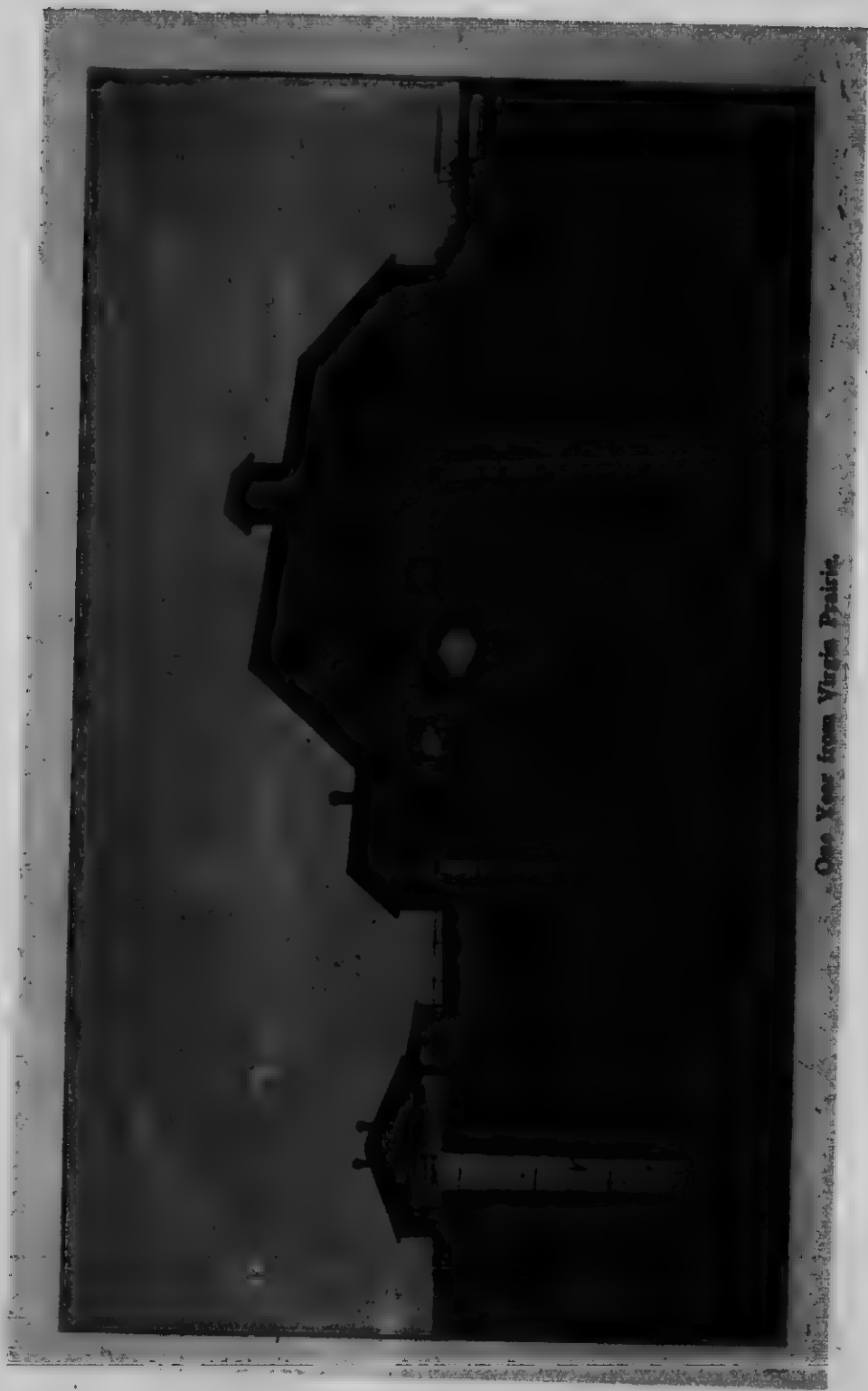
Dr. Elwood Meade, Chief of Irrigation and Drainage Investigation for the United States Government, says in connection with this matter:

"The soil of the irrigable lands of the Canadian Pacific Railway Company is fertile and well suited to the application of water. Taken in connection with the productiveness of the contiguous pasture lands, it is certain that the cultivation of irrigated areas will be highly profitable and will insure the creation of a large and prosperous agricultural community."

Prof. F. T. Shutt, M.A., F.J.G., F.G.S., F.R.S.G., Chief of the Division of Chemistry, Dominion Experimental Farm, makes the following observation:

"The first examination was made a few hundred yards north of the railway station at Langdon. The surface soil was found to be a black, heavy loam, evidently well supplied with humus (semi-decomposed vegetable matter), and containing such a proportion of clay as to constitute it a 'strong soil.' Technically, it would be classified as a clay loam. * * * The sub-soil is a heavy chocolate colored clay. The probabilities are that analysis would show considerable percentages of organic matter and nitrogen in this clay—at any rate, for some few inches—as the surface soil, characterized by such rich stores of these constituents, passes without any strong line of demarcation into the sub-soil."

"Crossing the railway track, we drove to the Company's farm, (Sec. XV.), and inspected the soil at a number of points upon it, and as far south as the Secondary Irrigation Canal 'A.' The surface



One Year from Virgin Prairie.

soil, apparently similar in all respects to that north of the railway track. * * *

"* * * Following east from Langdon along the Blackfoot trail the soil was examined in four places between Langdon and the canal, between Sections 6 and 7, Tp. 23, Rg. 25. The soil throughout was extremely uniform in character. * * * After crossing the ditch an examination was made in N.E. Quarter, Section 6, Tp. 23, Rg. 25, where the same heavy, black loam prevailed.

"* * * Driving north-east towards Strathmore an examination was made on Sec. 29, Tp. 23, Rg. 25, and no change of mark could be noticed, either in soil or sub-soil.

"The next day we drove south from Strathmore and made the first soil inspection about two and a half miles from that place, on Sec. 3, Tp. 24, Rg. 25. A change in the texture of the soil was here observable,—there was decidedly more sand, both in the surface and subsoil. Although lighter in character than that previously examined, the soil showed no perceptible diminution in vegetable matter, being deep black and well supplied with root fibre. The sub-soil was of sandy nature. In a depression or hollow, fifteen inches of black, sandy loam was found but on the upland the depth of the surface soil did not vary to any degree. * * * Turning northward two inspections were made between the latter point and Strathmore, the first on Section 3 and the second on Sec. 2, Tp. 24, Rg. 25. In both instances a deep, black, sandy loam formed the surface soil, underlaid by a brownish-red, sandy sub-soil.

"* * * From Strathmore to Gleichen the route lies south-east, the trail we took running north of Lakes Eagle and Namaka, and in a general sense parallel to the C.P.R. track, though considerably north of it. * * * A moderately heavy black loam was found on Sec. 32, Tp. 22, Rg. 23, with a sub-soil of comparatively stiff clay. A further trial pit was made on Sec. 23, Tp. 22, Rg. 23, and revealed a depth of about six inches of black soil, underlaid by a distinctly heavy clay."

The following extracts from a report by Prof. Shaw, Editor of the "Orange Judd Farmer," considered one of the foremost agricultural experts of America will be of interest—

"The first foot of soil in Western Canada is its greatest natural heritage. It is worth all the mines in the mountains from Alaska to Mexico, and more than all the forests from the United States boundary to the Arctic Sea, east as these are.

"And next in value to its heritage is the three feet of soil which lies underneath the first. The sub-soil is only secondary in value to the soil, for without a good sub-soil the value of a good surface soil

is neutralized in proportion as the sub-soil is inferior. The worth of a soil and sub-soil cannot be measured in acres. The measure of its value is the amount of nitrogen, phosphoric acid and potash which it contains; in other words, its producing power. Viewed from this standpoint, these lands are a heritage of untold value. One acre of average soil in the Northwest is worth more than twenty acres of average soil along the Atlantic seaboard. The man who tills the former can grow twenty successive crops without much diminution in the yields, whereas the person who tills the latter must pay the vendor of fertilizers half as much for materials to fertilize an acre as would buy the same in the Canadian Northwest, in order to grow a single remunerative crop."

Southern Alberta Climate

PROBABLY the first question given consideration when a man contemplates emigrating to a new country, is that of climate, for in his estimation it either makes or mars the country in which he contemplates making his future home. Because this question of climate is such an important one to him, as well as to the stock he expects to raise, it will be treated here rather fully.

In Southern Alberta the open nature of the country, clear, dry atmosphere, the abundance of sunshiny days (its elevation varying from 1,400 feet to 3,400 feet above sea level), and the fresh breezes that blow across its plains, all tend to make it one of the most healthful countries in the world. There is an entire absence of malaria, with no diseases peculiar to the country. The portion of the province referred to has a continental reputation as a sanitarium, particularly for persons with a tendency to pulmonary troubles, and many, discouraged of ever again being blessed with good health, have found it in Southern Alberta.

The winter in Southern Alberta is a season of bright, cloudless days, infrequent and scanty snowfalls, broken by frequent and prolonged periods of warm weather heralded by the "Chinook" wind, so called because it blows from the region formerly inhabited by the Chinook Indians, on the banks of the Lower Columbia River. It is a warm, dry wind blowing from the mountains across the plains. Its principal characteristic is its power to rapidly melt the snow, or almost, it may be said, to dry it up, as frequently no water runs from it. To it is due the pleasant dryness of every hollow on the prairie, even of the deepest coulees or prairie ravines. The effect of this wind in winter may be described as little short of miraculous in its clearing away of the snow, always scanty in amount, with amazing celerity.

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"Alberta Red" Winter Wheat.

In January and the early part of February there are sometimes short periods of cold weather, but this is the exception rather than the rule. March, on the whole, is disagreeable for our neighbors to the south and east, here brings in the first flowers of spring. April and May are generally fine, warm and bright; June and the early part of July, rainy; and the remainder of July, with August, September, and generally November, warm and very dry. The summer—July to September—is characterized by hot days, relieved by a never-failing breeze and cool nights.

Meteorological Statistics

Compiled by the Dominion Government Weather Observation Station
at Calgary

Years 1900 to 1906 inclusive

Rainfall in Inches

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1900	0.00	0.02	0.20	0.43	1.32	3.25	2.00	1.47	4.20	0.99	1.00	0.00	15.44
1901	0.40	1.15	0.95	0.90	1.33	7.84	3.94	0.41	3.13	0.12	0.40	1.20	21.31
1902	0.40	0.68	0.62	0.60	2.92	9.82	5.06	6.73	3.22	0.01	1.00	0.60	35.71
1903	0.00	0.00	0.00	0.29	3.97	2.07	4.09	7.02	1.80	0.00	0.60	0.16	21.98
1904	0.16	0.10	0.80	0.14	1.56	1.26	4.74	2.75	0.38	1.35	0.12	0.20	11.16
1905	1.37	0.30	0.68	0.60	1.67	2.32	0.91	2.56	0.38	0.31	1.20	0.00	16.51
1906	0.04	0.04	0.66	0.37	4.97	2.35	1.18	2.95	0.04	0.90	0.34	0.34	16.14

Highest Temperature

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1900	50.0	50.0	60.0	70.0	75.0	82.0	85.0	90.0	77.0	71.0	64.0	50.0
1901	45.0	57.0	55.0	72.0	80.0	77.0	80.0	85.0	75.0	74.0	60.0	60.0
1902	54.0	65.0	50.0	63.0	67.0	76.0	84.0	81.0	74.0	74.0	49.0	47.0
1903	51.0	47.0	5.0	68.0	64.0	81.0	81.0	80.0	70.0	75.0	68.0	53.0
1904	49.0	38.0	48.0	76.0	75.0	85.0	94.0	85.0	76.0	75.0	60.1	52.0
1905	46.0	57.0	66.0	78.0	81.0	85.0	91.0	86.0	80.0	72.0	70.0	47.0
1906	54.0	61.0	73.0	79.0	82.0	79.0	88.0	90.0	82.0	77.0	60.0	50.0

Lowest Temperature

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1900	-15.0	-27.0	-22.0	-2.0	28.0	30.0	36.0	30.0	17.0	11.0	30.0	-3.0
1901	-35.0	-18.0	-10.0	13.0	29.0	32.0	37.0	35.0	23.0	18.0	-5.8	1.8
1902	-30.0	-18.0	-24.0	4.0	25.0	29.0	38.0	31.0	24.3	22.0	-16.0	-26.8
1903	-12.8	-18.0	-23.0	16.0	23.0	34.0	38.0	36.0	26.0	18.0	-20.0	-22.0
1904	-22.0	-28.0	-25.8	18.0	23.0	26.0	34.6	32.0	21.0	21.0	6.0	-22.0
1905	-20.0	-40.0	-1.0	2.0	24.0	32.0	40.0	33.0	22.0	3.0	-25.0	-10.0
1906	-32.0	-16.0	-34.0	18.0	28.0	36.0	40.0	34.0	24.0	22.0	-8.0	-36.0

Mean Temperature

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1900	21.9	22.8	27.5	32.6	31.4	37.0	38.0	34.5	26.1	20.2	20.7	27.0
1901	13.8	18.4	30.0	32.3	32.0	49.3	38.7	39.0	28.2	20.5	26.0	26.0
1902	19.6	15.2	25.3	28.8	47.0	49.1	39.0	37.2	28.5	21.8	21.8	11.9
1903	20.5	21.5	14.0	38.5	43.5	37.1	36.7	24.4	24.0	22.1	25.9	25.9
1904	18.1	1.8	12.3	42.8	47.1	53.7	36.4	38.7	30.8	23.2	20.3	20.3
1905	9.6	15.1	35.2	39.1	47.6	32.5	40.8	39.4	30.7	33.2	24.5	24.5
1906	16.11	20.4	28.5	44.5	46.7	36.8	34.1	36.1	31.1	27.08	12.01	12.01

Combination Farms

OWING to the fact that the three million acre block of the Canadian Pacific Railway Company contains about equal proportions of irrigable and non-irrigable lands, it offers to the purchaser an opportunity to engage in mixed farming under almost ideal conditions. Here can be secured in the same quarter-section land lying above the canal system for the production of winter wheat and the grazing of live stock, and irrigable land for other crops, such as alfalfa, barley, etc., requiring abundant moisture, side by side. For farm purposes there is a never-failing supply of water, which insures crops when the seed is placed in the ground, and the question of a constant supply of water in every pasture for use of the live stock is also solved.

The irrigated portions of the land will raise all kinds of grain and root crops and a sufficient supply of fodder for winter feeding.

The non-irrigated sections will grow winter wheat or furnish the finest pasture for live stock to be found in the world.

The native grasses on the plains of Alberta are rich in fattening properties. So much so, in fact, that Alberta beef, shipped direct from the ranges, has come to be considered as fine as the corn-fed beef of the States.

Combination farms in this block may justly be regarded as the best agricultural proposition on the American continent.

Crops

WHILE Southern Alberta has acquired a great reputation as a winter wheat country, yet it should be understood that this is not a ~~winter~~ wheat country, and the farmer does not have to stake everything on a single crop. While wheat has been king, the land is adapted to diversified farming, and oats, barley,



A Farm Garden.

flax, alfalfa, timothy, clover, sugar beets and vegetables of every description grow in marvellous abundance and excellent quality.

That an understanding may be had of the cereal production in Alberta, as compared with that of other countries, the following table is published:

COMPARATIVE STATEMENT OF YIELDS OF GRAIN OF COUNTRIES NAMED,
AS PER GOVERNMENT RETURNS.

	Year.	Wheat.	Oats.	Barley.
United States	1903	12.9	28.4	26.4
"	1904	12.5	32.1	27.2
Russia	1903	10.6	17.7	17.5
"	1904	11.5	25.7	14.4
Austria	1903	17.7	28.4	24.7
"	1904	19.5	24.3	22.9
Utah	1905	26.4	39.8	37.0
Oregon	1905	18.6	24.1	31.0
Iowa	1905	14.2	—	—
Nebraska	1905	19.4	31.0	27.5
Montana	1905	23.8	41.3	33.0
Kansas	1905	13.9	27.1	22.0
North Dakota	1905	14.0	38.9	28.0
Wisconsin	1905	16.6	39.0	29.6

Canadian Crop Returns.

		Wheat:		Oats.	Barley.
		Spring.	Winter.		
New Brunswick	10 yrs. to 1901	14.1	14.8	25.8	21.6
Nova Scotia	"	15.2	13.4	25.8	23.5
Ontario	"	17.5	19.6	32.6	27.5
Prince Edward Island	"	17.5	—	27.7	23.1
Quebec	"	14.1	13.7	24.9	24.3
Manitoba	"	9.3	17.0	18.5	19.1
Saskatchewan	"	19.88	—	34.98	24.45
ALBERTA	1898 to 1905	20.69	21.03	35.67	26.50
"	1904	19.80	18.33	32.58	26.12
"	1905	20.69	21.03	35.67	26.50
"	1906	22.75	23.34	40.82	29.04
CALGARY DISTRICT	1904	23.22	—	39.79	31.42
"	1905	33.92	32.18	43.41	32.01
"	1906	27.8	25.4	49.0	31.0

In compiling the foregoing table, the Calgary District is made up of the comparatively small area contained within a radius of fifty miles of that city. And while in one or two instances the yield has been slightly larger than in this district, the fact must be borne in mind that in each instance the larger yields have been in highly irrigated sections; that no irrigation was used in this district, and that much of the seed here was sown upon first breaking, a large

proportion of which was badly prepared, and maximum results could not be expected.

Press Crop Bulletin No. 1 of 1907 has the following to say in regard to 1906 crop reports for Alberta:—

"It should be borne in mind, when studying crop bulletins issued by this department, that the yields given are based upon thresher's measure, and not by weight, thus the actual yield is much heavier than reported. For example: the standard weight of oats per bushel is 34 lbs., but those grown in Alberta average from 40 to 48 lbs. per measured bushel; therefore, the yield of oats, if given by weight, would be at least one-fifth to two-fifths greater, bringing the average estimated yield for 1906 up to fully 50 bushels per acre."

Cereal Growing Under Irrigation.

Sceptics have claimed that the various cereals can not be successfully produced under irrigation; that the cost of paying for water rental and supplying the water is too great, having in view the comparatively low value of such crops. It is of interest to note, however, that in the State of Colorado the water rental is twice as great as is charged in connection with the Canadian Pacific Railway Company's project in Alberta, which is fifty cents per acre per annum, (an extremely low maintenance charge) yet one-sixth of the whole irrigated area of the United States is devoted to the production of wheat, oats and barley. In the State of Colorado alone 248,000 acres of wheat are grown annually under irrigation; over 100,000 acres of oats, and some 20,000 acres of barley. The land in Colorado is worth from three to six times what the Canadian Pacific land is offered for, and as the soil of Southern Alberta is vastly richer than that of the irrigated sections of Colorado, no difficulty should be experienced by Alberta farmers in raising profitable crops of wheat, oats and barley under irrigation. The Alberta-Pacific Elevator Company, doing business in the province of Alberta, has a standing offer of ten cents per bushel in excess of the market price for all malting barley grown in this province; the maltsters of Europe claiming that Alberta barley is equal, if not superior, to the famous Gallatin Valley barley grown in Montana.

Wheat.

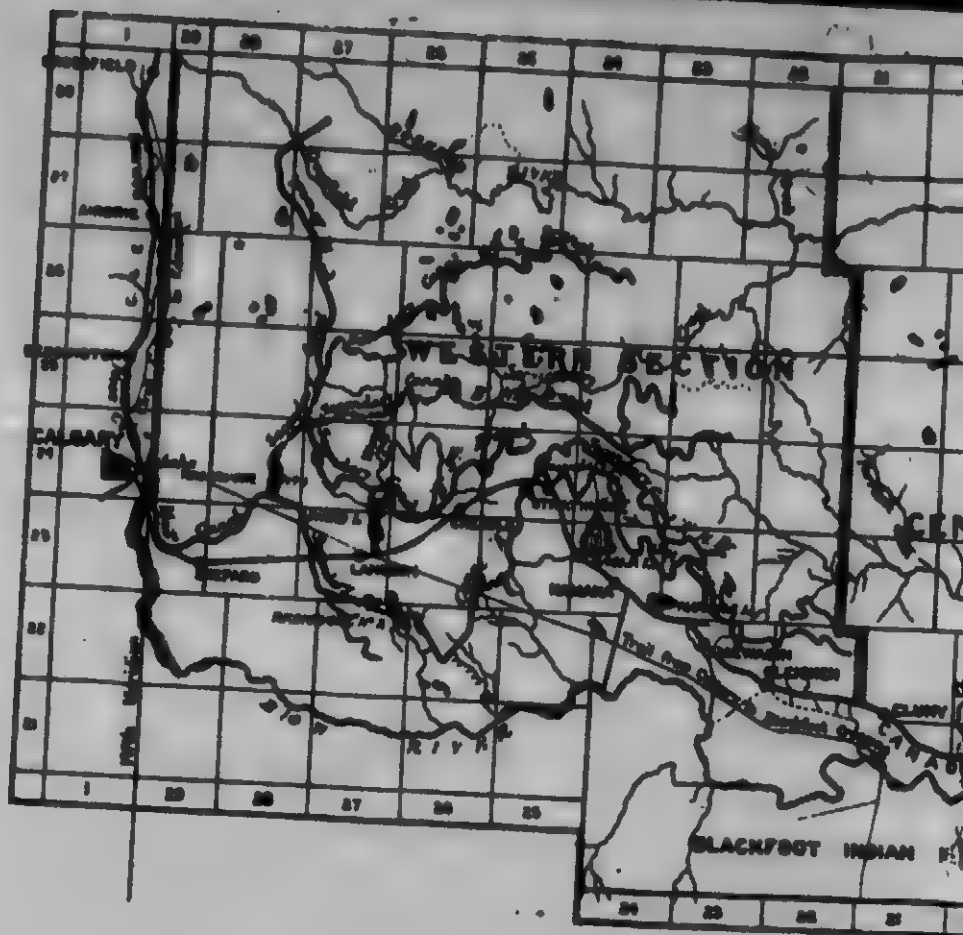
The history of the development of winter wheat growing in Southern Alberta reads like a fairy tale. During the past twenty years small areas here and there had produced winter wheat success-

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Two of the Company's Private Excursion Cars



MAP
OF AREA INCLUDED IN
IRRIGATION BLOCK
OF THE
CANADIAN PACIFIC RAILWAY CO.
ALBERTA.

SCALE OF MILES
1007

J. S. DENNIS
DEPARTMENT OF THE INTERIOR
C. P. R. COMPANY



CANADIAN PACIFIC
IRRIGATED LANDS



Headquarters in Great Britain.

fully, season after season. Our enterprising cousins from south of the International Boundary, who had been passing through this portion of Alberta for years, finally began to regard this proposition with a certain degree of curiosity. They had generally had some experience with winter wheat, but could scarcely credit the fact that this cereal could be successfully grown north of the 49th degree of latitude.

After carefully looking over the country and the scattered crops, curiosity rapidly deepened into keen interest, which was further intensified when enormous yields of winter wheat were reported in the Mormon settlements south of Lethbridge. It suddenly dawned upon our "old timers" that they had been missing golden opportunities by confining their efforts solely to stock raising, and that Southern Alberta was indeed the home of winter wheat.

Alberta Red.

The variety of winter wheat most extensively produced in Alberta is hard wheat called "Alberta Red," an improved variety of Kansas Turkey Red. The following milling tests have been made of spring wheat and "Alberta Red," and the contrast is readily seen without comment. Figures like these are eloquent:—

SPRING WHEAT.

	Per cent. absorpt'n.	Per cent. moist glut'n.	Per cent. dry glut'n.	Per cent. acid'ty.	Per cent. moisture.
Hungarian Patent ..	57	33	11½	.03½	.08
Strong Bakers ..	57	43	15½	.04	.09
XX Spring ..	64	37	15	.06	.07

WINTER WHEAT.

	Per cent. absorpt'n.	Per cent. moist glut'n.	Per cent. dry glut'n.	Per cent. acid'ty.	Per cent. moisture.
Alberta Red Patent ..	60	37	11	.03	12½
Strong Bakers ..	55	54	17	.04	13
Straight Flour ..	56	42	12½	.03	.07
XX Flour ..	60	37	15	.08	.10

William S. Jackson, President of the Chicago Board of Trade, who recently visited Winnipeg, and has been testing samples of western winter wheat, says:—

"The samples of red and white winter wheat from Alberta have been submitted to our large millers, to Chief Grain Inspector Smiley, to the expert buyers of our elevators, and unofficially to the grain committee of our board. It was the judgment of all that the wheat was exceptionally fine, and would grade number one in this market,



Miles of "Alberta Red" Wheat

which, commercially, is an almost unknown quality. Many here were aware that experiments in growing winter varieties of wheat had been made in the great Canadian Northwest, but few were aware of the results. The samples excited a good deal of interest, and several parties expressed a desire to own land producing such a quality of grain."

The Alberta Pacific Elevator Company, Limited, has already secured contracts for the shipment of wheat westward in competition with wheat formerly purchased in the States. The Alberta Red carried off the gold medal and highest award at the Portland Exposition in competition with winter wheat from all parts of the United States.

In tracing the geographical distribution of wheat, it will be observed that soft wheat is produced in the humid states of the east and south and the Valley of the Mississippi River; also, on the Pacific Coast and on the irrigated lands of the arid regions of the Union. Hard wheat is confined to the strip of semi-arid country extending from Western Canada south through Western Minnesota, the Dakotas, Nebraska, Kansas and Oklahoma. Hard wheat requires for its production a soil rich in nitrogen and receiving a limited quantity of moisture, combined with a short growing season and a dry atmosphere. Such conditions limit the production of hard wheat to the territory mentioned, because it is only there that they naturally obtain. Southern Alberta possesses all these characteristics, and with an enormous market for flour and wheat available in Oriental countries, with which Calgary has direct connection, an era of agricultural prosperity, which has never been equalled in the history of colonization in any part of the globe, is now dawning in this portion of Alberta.

Soil depletion has been universal in regions growing wheat exclusively, and all the great wheat-raising regions of the United States have finally been compelled to resort to restorative farming. Dairying and other intensive forms of agriculture now dominate the former centres of wheat production. In the Genesee Valley of New York, the Miami Valley of Ohio, and in Northern Illinois, the former great wheat producing regions many years of intensive farming have been required to restore soil fertility. Wheat growing has had its great activity on unsubdued land in the forefront of civilization, has preceded more general farming, and has been conducted in an extensive and wasteful manner. Now land is no longer to be obtained except in small areas. "If wheat cannot be produced on old land, we must depend on Canada for our supply, for only there is virgin soil still to be found," says "The Twentieth Century Farmer" of Nebraska. And that is the reason for the American exodus to Canada.

Oats

Oats give enormous yields and are first quality. It is no uncommon thing for a farmer to realize 90 and even 100 bushels of oats to the acre, and not a few instances are recorded in which the yield was 115 bushels to the acre, weighing at least 40 to 48 lbs. to the bushel. Oats are always in demand, and at prices ranging from 30c. to 60c. per bushel. British Columbia lumber and mining camps make large demands on Alberta farmers for oats.

Barley.

Under irrigation, barley is a paying crop. Mr. J. S. Dennis, speaking of the profits of barley growing, says: "The irrigated lands of the Gallatin Valley, Montana, have become famous for the quality of barley produced, particularly for the high percentage of malt and the color and superior quality of the beer produced from the malt of same.

"An irrigated farm furnishes ideal conditions to enable the almost absolute assurance not only of a high grade yield, but also uniform and thorough maturity of the germination quality of the grain combined with light color, which is considered an essential qualification."

Barley has for years been grown in Alberta with great profit, though in limited acreage, without irrigation. It will be one of the staple crops in the company's irrigated belt.

This portion of the province is to-day the banner flax-growing section of Canada; the soil and climate are exactly suited for the production of the maximum amount of seed, and the tallest, cleanest and brightest straw. With the successful solution of a new process of making linen from flax straw, this crop promises to be one of great profit, as under irrigation the yield of seed and quantity and quality of the straw reach their highest development and perfection. The Dominion Government report for 1906 is not yet completed, but that of 1905 gives the average yield in Alberta as 14.34 bushels to the acre. Compare this average with that of North Dakota, the state that leads in American flax production, and you will be convinced that Alberta is all right for flax. The average in North Dakota in 1905 was 11.6 bushels per acre. The average yield for the district of Calgary is 28.64.

Field Peas.

The field pea, as grown in Southern Alberta, differs from the field pea as grown anywhere else in the world. It might almost be a different plant. The reason for this lies in the difference in climate.

Southern Alberta is high, so it has a cool climate throughout the summer; it has warm sunshine, and almost no cloudy weather at all, with air which is very dry. It is sheltered from hard storms and blizzards by high mountain ranges, so that the peas can be fed all winter.

The Alberta field pea is a small, hard, round pea; it is not like the "c w," "clay," or "whippoorwill" pea, grown quite extensively in the south.

This variety is a true pea, and very hardy, standing quite severe frosts without injury. Field peas in Southern Alberta are drilled in or sown broadcast and ploughed under early in the spring. From 20 to 30 pounds of seed is used per acre, and they sprout very rapidly. The crop receives no cultivation, but is irrigated by flooding, just like grain, until the vines cover the ground, and then the farmer is through working them.

If planted in the East or in a warmer climate, a crop of field peas would continue to grow and flourish just as long as cool spring weather prevailed; but the first warm days of summer would see the vine begin to turn yellow, the leaves to fall off, turn mouldy and discolor, and the pods shrivel up and drop the seeds. Here such extremely hot weather seldom comes; all through the summer the air is cool and the pea vines continue growing throughout the season. The pods that set on early in the season continue green and hold their seeds, while the lengthening vines put on increasing pods. The vines roll over in masses on the ground, where they continue clean and green. In a hotter, damper climate, they would soon be ruined by blight and mildew. The first hard frost in the fall kills the vines and ripens the pods. Like all leguminous crops, they leave the soil in fine condition for grain, even better than a summer-fallow.

For hog feed, peas are equal if not superior to corn, making a much sweeter pork. Three and one half bushels of peas are equal to five bushels of corn for feeding, and yield from 30 to 50 bushels per acre.

Hogs pastured in alfalfa in the summer, and then turned into the pea field, are soon ready for market.

Pea vine hay (cutting the peas before ripe) makes an excellent fodder for milch cows, producing nearly as much milk as the summer grass.

An acre of peas will fatten more lambs than an acre of corn, with less than one-tenth of the labor; the lambs to be fattened are simply turned into the fields in the early winter, eating the cured vines as hay and the peas as grain. All the attendant has to do is to see that they eat up the peas clean as they go, and that they have water. In 60 to 90 days the lambs are finished and ready to go to market, where they bring the highest prices paid.

The Southern Alberta feeder is always sure of a market that will pay him top prices, and no other place in the world has just that peculiar combination of cool, dry air, open winters and sunny summers, enabling the field pea to be raised and pastured as it can be here, so the growers have little to fear from direct competition.

Alfalfa

The most marvellous aspect of the modern popularity of this plant lies in the fact that it is perhaps one of the oldest known forage crops, and yet may justly be regarded as the agricultural revelation of the latter part of the last century.

It is safe to say that the increase of interest in alfalfa during the past twelve years has been equalled by that of no other agricultural product, and in no other crop has there been such a ratio of increase in acreage. A field of alfalfa carries four or five times more live stock than if it were in natural grasses. Cattle, sheep and pigs are turned into the alfalfa to feed and fatten upon it. The area laid down with this plant in the Argentine Republic in 1894 was 1,500,000 acres, and in 1898, 3,000,000 acres. This conveys some idea of the value attached to this plant in that far-off country. In the State of Kansas the increase in acreage sown between 1880 and 1900 was over 800 per cent.

The most attractive feature of the alfalfa field is its lasting qualities. Near the city of Mexico are fields in existence that have been constantly cropped and never reseeded for upwards of three hundred years. Alfalfa has not yet reached the point in Alberta where it may be considered a leading crop. In fact, as this crop can only be successfully produced under irrigation, and as irrigation development on a large scale is of somewhat recent origin in Southern Alberta, it follows that our experience with alfalfa is correspondingly limited. It has, however, been demonstrated beyond the least shadow of doubt, that alfalfa is a most successful crop in Alberta, and can be grown in abundance on the irrigated lands here.

The most instructive data in regard to alfalfa applicable to Southern Alberta, may be obtained by studying the records of the



Demonstration Farm No. 3, Glendale.

State of Montana. The climatic and soil conditions of Southern Alberta are so very much like those of Eastern and Central Montana, that it may almost be taken for granted that the life zone of any plant growing successfully in those parts of Montana, also includes the southern portion of the province of Alberta.

Professor Smith, for many years director of the Agricultural College at Bozeman, is responsible for the statement that alfalfa fields in the Yellowstone district have been cropped for sixteen consecutive years, and that this plant has been tested in almost every irrigated county in the State of Montana, and as a general rule succeeds remarkably well. In case of failure it has usually been found that the cause was due to the water table of the soil being too close to the surface.

In the lower parts of Montana three crops are cut each season, and in other parts of the state two. The yield runs from two to seven tons per acre, depending on the condition of meadow, stand, water supply, etc. Four tons might be considered a fair estimate of the Montana yield per acre. The average price for cutting and stacking runs from seventy-five to ninety cents per ton.

The certainty of the irrigated lands of Southern Alberta producing alfalfa as a leading crop, opens up a vista of possibilities in many directions. During the early years of settlement in that province, the claim was made that Alberta possessed all the natural conditions to make it one of the leading live stock countries of the world. When farmers invaded the Dominion's domain later on, and numerous crops of winter wheat and other coarse grains were successfully harvested year after year, Alberta's fame as the foremost stock country faded, and the world henceforth knew it only as a great crop producing district. The advent of irrigation and alfalfa will again bring the live stock industry to the front in Southern Alberta, history thus repeating itself.

The popular impression of farming under irrigation is, that only the most expensive crops, such as fruits and garden produce, can be profitably grown under artificial watering. An examination of the agricultural statistics of the United States, however, reveals the fact that fruit growing and truck farming form a very small percentage of the areas under irrigation. Fully 80 per cent of the whole irrigated area of the United States being devoted to producing crops for the feeding and finishing of live stock, principally alfalfa, and including coarse grains. The live stock industry being the foundation of all irrigation development in America, it is reasonably certain that live stock husbandry in connection with irrigation farming will predominate to even a greater extent in Alberta.

To further illustrate the ~~trading~~ importance of fruit growing under irrigation compared with fodder production, it may be mentioned that in the State of Colorado, out of a total irrigated area of 1,500,000 acres, only 35,000 acres are devoted to fruit growing, while considerably over a million acres produce alfalfa and other fodder crops.

To sum the matter up, it has been shown above that even in states where irrigated lands command the highest value per acre, and where the climate admits of the tender fruits being grown, alfalfa is still King, and competes successfully with fruit growing and truck farming. It is not at present claimed that Southern Alberta will grow the more tender varieties of fruit, but it has been demonstrated beyond doubt that the irrigated lands here can and do produce alfalfa, which is regarded as being a more valuable and profitable crop in those states where it is grown side by side with fruits; hence it is reasonable to class the rich, virgin alfalfa lands of the Canadian Pacific Railway irrigation block as being fully equal in value, acre for acre, intrinsically, with the most high priced irrigated lands in the Western States.



Timothy

Alberta soil has proved itself particularly adaptable to the growth of timothy, and returns exceedingly large yields in this crop. It has a splendid head and stock, and grows to a good height. Three tons to the acre is no unusual crop, and it finds a ready market at from \$12 to \$18 per ton.

Last year a farmer at High River raised under irrigation a crop which he sold for \$52 per acre.

Owing to the ever increasing activity in British Columbia and the Yukon, they will afford a growing market for the timothy crop of Southern Alberta.

Sugar Beets

No industry lends itself more readily to profitable development under irrigation in Southern Alberta than sugar beet production. With a view to encouraging beet growing, the Canadian Pacific Railway has arranged to reduce its transportation charges on beets from points in the irrigation block, east of Calgary, to the nearest sugar factory, located some 200 miles from that city. The Provincial Government pays a bonus on beets through the sugar companies, and other industries contribute as well towards the rapid development of



Book of Oriental Trade

this valuable industry. The result is that the price paid farmers for sugar beets at the nearest railway station in the irrigation block has been fixed at \$5.00 per ton f.o.b. cars. The average price paid for beets for the whole of the United States, according to the last census, was only \$4.18 per ton. In the State of Minnesota a minimum price of \$4.25 per ton has been established by law. The price paid for beets in Utah, one of the foremost beet growing states, was \$4.25 per ton, with an average yield of 11.4 tons per acre.

It is generally considered that 15 to 16 tons per acre is a fair crop. In the State of Washington up to 32½ tons per acre were produced by actual weight. Intimately connected with the cost of production and yield per acre is the question of the value of the crop. With the enormous market available in British Columbia and in the Province of Manitoba, where experiments with sugar beets have not so far given encouraging results, as well as the local demand, Alberta beet growers may confidently expect to receive the highest price for their crop. The price on the irrigation block now is \$5.00 per ton, but it is only a question of a couple of years when factories will be established within the block itself; the transportation cost may then be saved to the farmer, and the beet will net him from \$5.50 to \$5.60 per ton at the station.

One of the most important elements in beet sugar production is cheap fuel. Very few countries can compete with Southern Alberta in this respect. Coal is found everywhere, at least in districts where beet sugar growing is likely to be prosecuted on a large scale. Suitable limestone deposits are also available on the eastern slope of the Rocky Mountains.

The most favorable soil for sugar beets is conceded to be a soil which carries a generous quantity of sand. A clay soil with a tendency to bake is the most unfavorable. The former class of soil predominates almost everywhere in the irrigation block. It is also a well known fact that the farther north the sugar beet can be successfully grown, other things being equal, the better the result. The immediate reason for this is that the long cloudless days of northerly latitudes increase the activity of the chlorophyl cells of the beet leaves, which elaborate the sugar, so that a greater quantity of sugar may be made in proportion to the area of leaf surface.

Below is a statement of a factory test of sugar beets grown in Southern Alberta under irrigation:—

No. of Sample.	Aver. Wt.	Briz.	Sugar in Juice.	Sugar in Beet.	Purity.
1	10.2	21.6	18.3	17.2	64.3
2	10.2	23.2	19.2	18.1	82.6
3	12.6	24.0	19.1	18.0	79.6
4	14.3	25.1	22.4	21.1	80.2
5	14.4	21.6	18.3	17.2	84.7
6	12.2	19.9	16.1	16.1	80.9
7	22.0	23.0	16.2	15.0	78.7
8	4.6	26.3	22.6	21.1	82.1
9	12.4	27.0	19.3	14.6	74.9
10	6.0	28.8	23.7	22.3	84.0
11	12.3	27.0	21.9	20.6	81.1
12	14.6	28.3	22.6	21.1	79.8
13	9.0	29.1	22.3	21.2	77.1

It is generally considered that the purity should not run lower than 80 per cent., which is the factory standard, but in this case, where such purities go below 80 per cent., it is due to the fact that the beets were somewhat dried en route.

The contents of sugar in beet, as will be noticed, is remarkably high, reaching in one case 22.3 per cent., while several samples tested over 21 per cent. It may here be mentioned that the average percentage of sugar in beet, in connection with a series of analyses of Montana grown beets in 1898, was only 11.2, while the total average for Montana analyses for 1897, 1898 and 1899 was 12.1; even Utah, one of the best beet sugar producing states, was only 14.3 for the above-mentioned period. It may, therefore, be safely concluded that Alberta possesses unequalled advantages on the score of the quality of the beets which can be produced.

The following is an estimate published in the *Prairie Farmer* of Nebraska, compiled from carefully prepared notes made by one of the most painstaking farmers in the States, concerning the total cost incurred on a plot of five acres:

Fall ploughing at \$4 per acre	\$ 5.00
Ploughing in Spring at \$5.25 per acre	6.25
Rolling twice, once after planting, once before planting	1.50
Planting by hand at 75c. per acre	3.75
Cultivating with hoe at 75c. per acre	3.75
Hoeing by hand three times and weeding necessary at time of hoeing	90.00
Thinning at \$10	50.00
Cultivating by horse twice at 75c.	7.50
Running over with hoe to clear from remaining weeds	3.75
	<hr/> \$171.50

From the above data it may safely be concluded that beets can be grown in Southern Alberta at a cost of less than \$35.00 per acre, allowing current rate of wages and without using the latest improved machinery, which will easily reduce the cost to \$32 per acre.

The labor question has always been regarded as the most serious one in connection with sugar beet culture. The possibilities in the way of combining other industries, requiring considerable hand labor at other times of the year, with beet growing, promises to aid materially in solving this question. In this respect the irrigation block is fortunately situated. The Blackfoot Indian Reserve is located contiguous to the block. The Indians take considerable interest in farm work, and generally hire out on hay contracts and similar farm work during the season. This class of labor will be available for beet culture.

The feed value of beet pulp, the by-product of sugar manufacturing, is very considerable. Although few practical experiments have been made to determine the exact value, it has been estimated that four tons of beet pulp is equal in feed value to one ton of good alfalfa hay. Beet pulp is considered better feed for stock than the whole beets themselves, owing to certain foreign salts having been washed out in the process of manufacture.



"The Finished Product"



Alberta Horses are World-Famed.

Live Stock

IN studying the economic side of irrigation, the first fact that must be clearly grasped is, that the back bone and foundation of any irrigation enterprise is not by any means the production of either fruits, cereals, or garden truck, but the feeding and finishing of live stock. This has been the history of irrigation development in every state of the union. The proof of this contention is that the total irrigated acreage in crops in the United States at the time of the de-cennial census was only four per cent in hay and forage. The actual figures are: Total acreage, 5,712,800 acres; in hay and forage, 3,666,000 acres. This tells the tale.

Mr. H. C. McMullen, general live stock agent of the Canadian Pacific Railway Company, made the following statement regarding the live stock situation in December, 1906:

"The export of cattle from the Northwest provinces this year has far eclipsed any previous year.

"Last year there were shipped out of the two provinces for export fifty thousand head of cattle while this year's shipments will exceed last year's by nearly twenty thousand. Thus far, there have been shipped over sixty thousand head up to the end of November; and all the November reports are very good.

"Practically all the cattle shipped have been from Alberta, and the grade has been better than those shipped last year; also, the cattle have been, on the whole, in better condition.

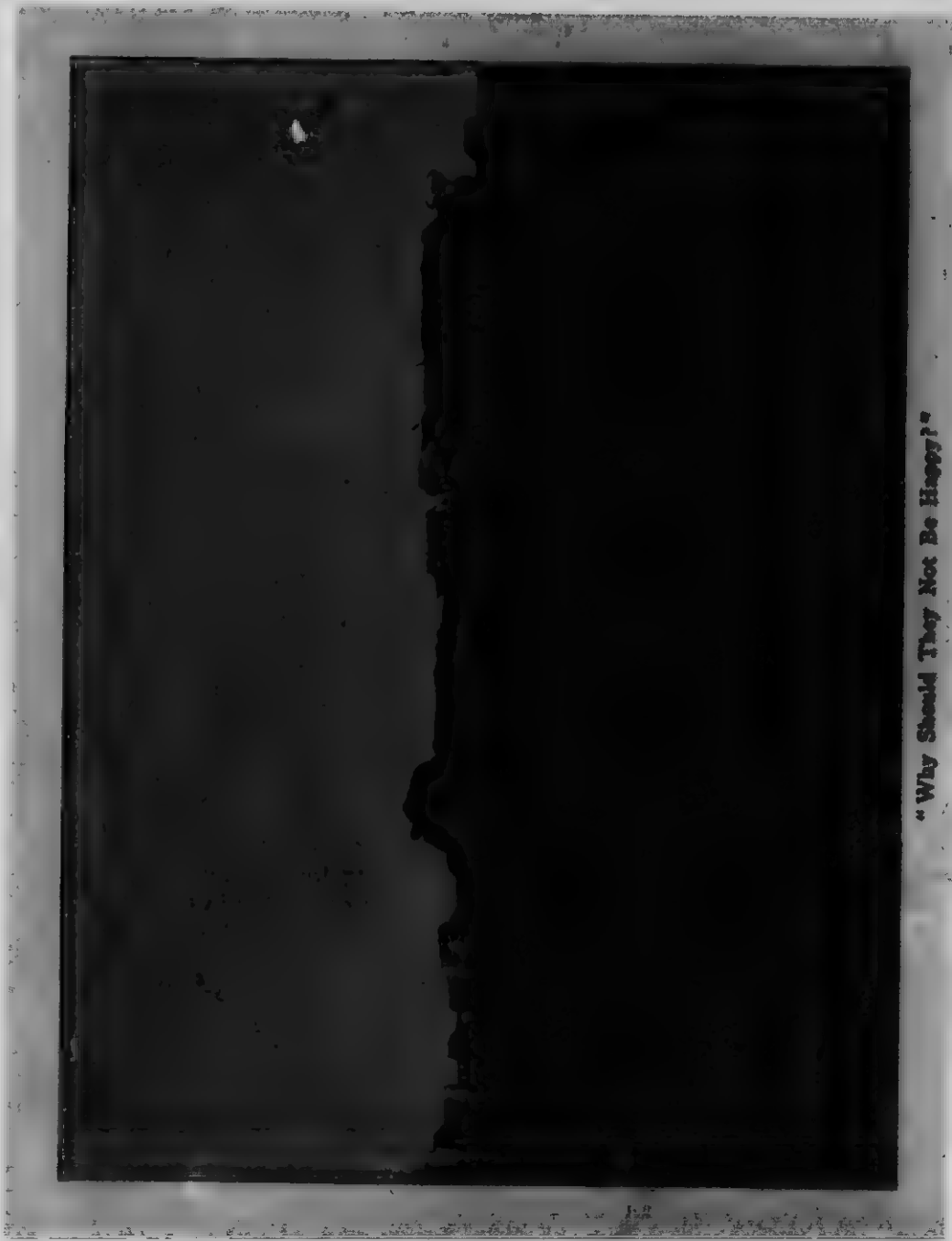
"Although at no time have the prices reached the high point to which they jumped last year, they average better than in 1905. The prices have been very satisfactory to most shippers, and have been very staple.

"Although the large cattle owners have not been crowded out, the small farmers are growing in; and owing to their numbers and different style of operation, there will be greater returns in the future from cattle on account of the different means of feeding and the greater attention to breeding.

"The cost of production will be slightly more, but there will not be the heavy loss the large owners suffer in letting cattle run on the range all winter with only what food they can rustle.

"The feeding of cattle during the winter is increasing, and the result is seen in the better conditioned stock that is put on the market.

"The outlook for 1907 is very bright, and ought to show a greater output this year than ever, with the grade of cattle steadily improving.



"Why Should They Not Be Happy?"

"In 1905 there were shipped from various points in Alberta 12,733 horses; while to the last of October of the year 1906, 16,511 horses have been shipped, and they were better class than those shipped the year before.

"Very few of the horses were shipped out of the country, as the new settlers are buying all that are now put on the market."

The lands embraced within the Canadian Pacific irrigation block are destined to fulfil the same purposes in regard to the highest development of the live stock industry as the corn growing states tributary to the great market centres of the union and the irrigated valleys of the Western States. The time is close at hand when the great bulk of live stock produced in Alberta, and now marketed in a more or less unfinished condition, will be sent to the rich alfalfa growing lands east of Calgary, there to be put in prime shape before being exported or slaughtered. A home market will thus be made available for all the fodder that can ever be produced on our irrigated lands at highly remunerative prices, and with the additional advantage of having the feed consumed on the irrigated farm and ultimately returned to the soil that grew it, thus maintaining the fertility for which these lands have already gained renown.

Horses.

In breeding horses, Southern Alberta occupies a somewhat similar position to Canada that Kentucky does to the United States. Owing to the high altitude, dry and invigorating atmosphere, short and mild winters, and its nutritious grasses and inexhaustible supply of clear, cold water, it is pre-eminently adapted for breeding horses, and the Southern Alberta animal has already become noted for endurance, lung power and perfect freedom from hereditary and other diseases. There are in Southern Alberta several grades of horses, varying in point of quality from the hardy Indian pony (cayuse) to the beautiful well-formed thoroughbred.

Thoroughbreds from Great Britain and Kentucky, Clydesdales from Scotland, Percherons from France, and trotting stock from the United States, have been imported at great expense, and the result is that the horse produced in Southern Alberta will compare with any in the world, and finds a ready market anywhere.

Heavy draught horses are now finding a ready sale at highly remunerative prices. Teams weighing 3,200 lbs. and upwards, are worth \$400 and more. Between 2,800 and 3,200 lbs., the average price would be \$375, and the value of teams weighing between 2,400 and 2,800 lbs. is about \$300 and upwards, according to quality.

Owing to the mildness of the climate, horses can be wintered outside at a nominal expense, consequently, no country in the world can compete with Southern Alberta in horse raising.

When it is considered that it costs no more in Southern Alberta to raise a four-year-old colt than a steer of the same age, it will be realized that horse production here, with the necessary capital, is an easy road to success.

Cattle

We have already referred briefly to the question of beef production, with special reference to Southern Alberta's nutritious grasses. The feeding effect of the dried prairie grasses puts a finish on beef almost equal to grain. Southern Alberta is now supplying the province of British Columbia with beef, as well as the Yukon territory. In addition a large export business to Great Britain is done.

It is a fact that the cattle of this section are of vastly better quality and breeding than the average run of range stocks in the Western States. The best pure-bred bulls are being generally used. It is an interesting fact that the City of Calgary is the home of the largest individual purchase of cattle auction sale in the world. Some five hundred head of all breeds were offered last year. This sale takes place in the month of April each year, and on that occasion stockmen gather from far and near to purchase their bulls and transact other business. Shorthorns, Herefords, Polled Angus and Galloways are the chief breeds, while some few Holsteins and Ayrshires are produced.

For the smaller breeders, while dairy and beef production must necessarily go hand in hand, a good milking strain of Shorthorns is found the most profitable.

To illustrate the class of cattle produced, it may be mentioned that a train load of four-year-old steers from a ranch near Cochrane, after being driven 175 miles, and shipped by rail 2,300 miles to Montreal, weighed at the end of the trip, on the average, 1,385 lbs. Four-year-olds and long threes have during the past four years netted the owners from \$40 to \$45 on the range; three-year-olds and good cows, \$32 to \$37 each; old cows from \$24 to \$26. Calves from six to eight months old are worth from \$10 to \$12. Breeding enterprises for furnishing bulls, under the management of experienced men, are proving profitable ventures. Several are already being carried on, furnishing a class of stock not exceeded in quality by many of the older established breeding herds of the east.

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Alberta Museum



Sheep.

Sheep, in common with other stock, have always prospered on native Alberta grasses. With the growth of alfalfa and field peas on our irrigated lands will come a vast extension of the sheep-raising industry, and the ever-increasing population in the eastern part of Western Canada, where, for climatic and other reasons, stock raising is not profitable, will forever guarantee a satisfactory market.

Those engaged in sheep raising are enjoying unparalleled prosperity. Mutton and wool now command top prices. Flock-masters in Alberta will not be affected for many years to come by the great fluctuations in sheep products. Woollen mills are being established in the West, and an enormous local market for mutton is available in British Columbia, the Yukon, and the province of Manitoba. The principal market for Alberta grown mutton is at present the province of British Columbia and the Yukon territory. The requirements of the province of Manitoba are at yet very considerable, but with the large growth of urban population and the gradual acquirement of a taste for mutton noticeable all over the civilized world, it is probable that Manitoba may in time become a very valuable market for Alberta mutton. During the past year some 5,000 head of Alberta sheep were sent to the Manitoba market, and no more being available, it was found necessary to draw upon the province of Ontario for a considerable number. These sheep were thus sent some 2,000 miles to supply a market right at the front door of Alberta. The markets in British Columbia and the Yukon are susceptible of expansion, as considerable mutton is now being brought in from the United States and the colony of New South Wales, amounting to over 20,000 carcasses annually, which might also be supplied from Alberta.

Hogs.

As might be expected in a district where the dairy industry is growing so rapidly, hog raising, affording, as it does, the most economical method of realizing the largest profits from skimmed milk and other dairy by-products, is a very important branch of farming in Southern Alberta. The soil conditions and climate, which are so eminently suited for dairying, are also productive of those crops which produce the cheapest pork.

As a foundation for winter feeding, all root crops can be grown with great success under irrigation. Enormous crops of turnips, beets or mangolds, are produced with ordinary field cultivation.

The mildness of the winter season makes it unnecessary to have



Happy on the Range.

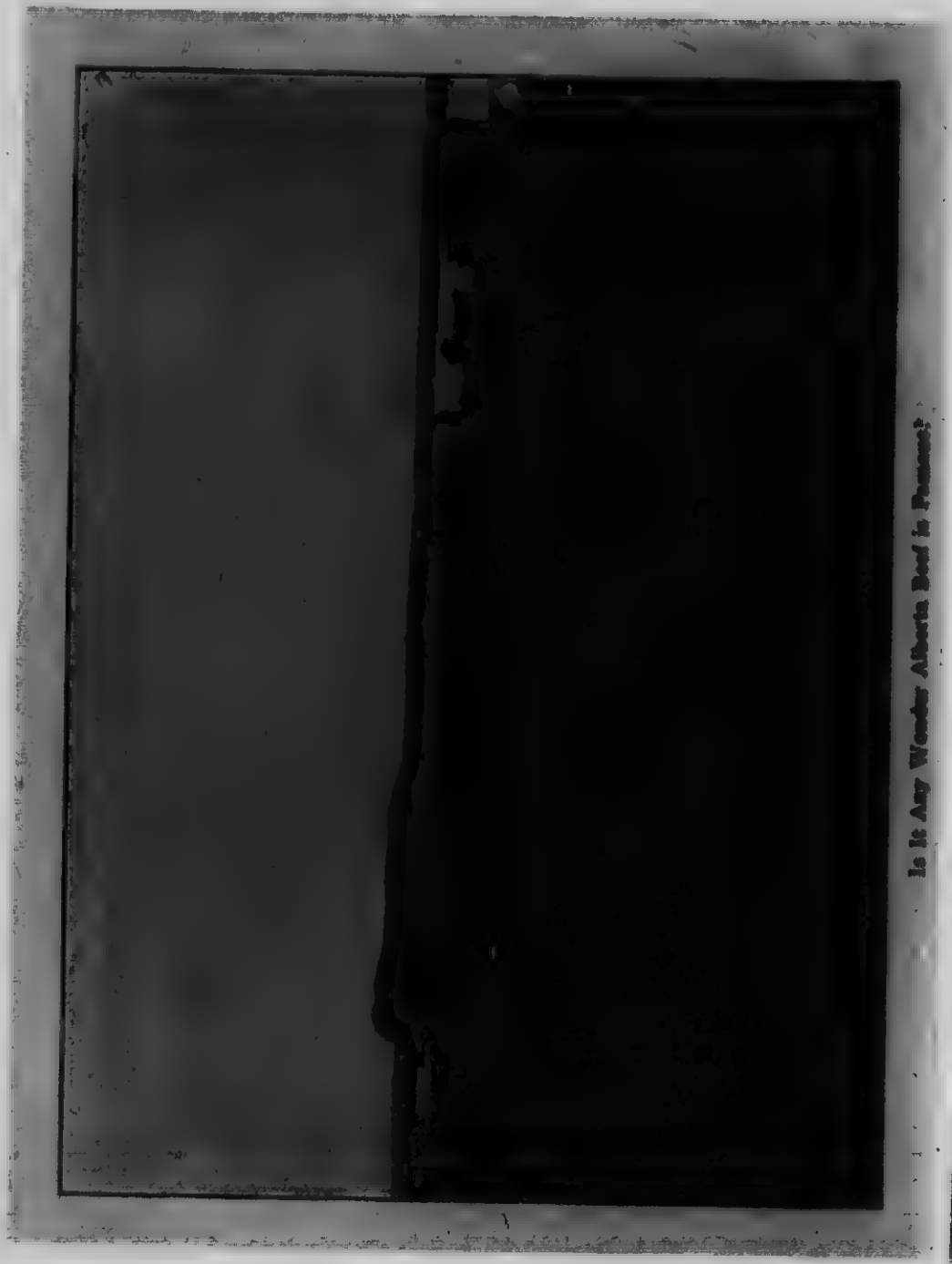
the costly buildings which are essential to profitable feeding in the winter time in the colder climates, thus enabling farmers of moderate means to have fat hogs to sell when the highest prices are obtainable, during the late winter and early spring months. For some years past the fluctuation in prices have been very slight, the net prices received by the farmers being seldom under five cents in the autumn and six cents in the spring and summer months (live weight), and at these prices farmers have made good profits.

Calgary, the live stock centre of Alberta, has an excellent pork-packing establishment where top prices are paid.

Dairying

The Provincial Government maintains at Calgary the largest and most important "dairy station" and cold storage in the West. Some years ago our dairymen became dissatisfied with the private creameries which were then in operation throughout the country, and asked the government to take charge of these institutions. The Dominion authorities, in response to the request, placed experts at their disposal, and eventually organized a chain of co-operative creameries all through the country. These institutions are subject to the control of the patrons, through a board of directors, under absolute government management. Most of the patrons separate their milk at home by means of hand separators and bring their cream to the dairy station three to four times a week. The cream is then carefully tested and weighed, and at the end of every month each patron gets credit for his equivalent in butter, and receives a cash advance of ten cents per pound. At the end of 30 or 60 days a cheque for the balance due each patron is sent him from the Department of Agriculture. A uniform charge of four cents per pound is made by the government for manufacturing, and one cent per pound is also deducted to create a fund for purchasing buildings and machinery, of which the patrons become part owners to the extent of the amount contributed in this manner. Any settler having the means to procure a few milch cows can thus ensure a cash income from the first day he starts on his land. The butter is sold principally in British Columbia and the Yukon. A trade is also being developed by the government in China and Japan. This creamery service has recently been placed under the control of the Provincial Government.

Here is our dairying combination: A never-ceasing abundance of the best food for cows; our marvellous native grasses, alfalfa, peas, abundance of fresh, pure water, absence of mosquitoes and flies, and our provincial creameries taking charge of the cream, manufacturing



Is It Any Wonder Alberta Beef is Famous?

it into butter and seeking the best market, all at a nominal charge of four cents per pound, a cheque to the farmer the first of every month and a home market already greatly in excess of the production and constantly and rapidly increasing.

The year 1906 has been the most successful season since creameries were established in Alberta. From less than four hundred pounds in 1902 the output has steadily increased until 1,050,536 lbs. were manufactured in 1906.

Not so very long ago dairying in Southern Alberta was regarded by many as a mere make-shift, a present necessity to provide a little ready cash, to be abandoned as soon as the stock and grain output became sufficiently large to supply the necessities and comforts of life. But it is rapidly becoming recognized as an industry in the province, and one which gives both ample scope and satisfactory returns for the ability and intelligence devoted to it by the dairymen.

The following table will show the volume of increase in output during the past three years:

Year.	No. Creameries.	Lbs. Butter Manuf'd.	Value at Creameries.	No. Patrons.	Average price at Creameries
1904	7	293,156	\$ 69,443.38	444	20.67
1905	12	813,430	173,671.40	1,201	21.35
1906	16	1,050,536	222,970.77	1,733	21.23

Poultry Raising

Not enough attention is given to the business of raising poultry. Intent upon larger things, the Alberta farmer neglects the incidentals. The climate is wholly favorable and the business needs only close attention and ordinary judgment. There is a large field in Southern Alberta for the industrious poultry raiser. A few acres and a few hundred chickens will yield a good income.

Where hens does not freeze and roosters' combs usually retain their glory all the year through, there is no excuse for chickens not multiplying and replenishing the backyard profusely. And they do. With eggs at 35 to 50 cents per dozen and dressed poultry at 15 to 22 cents per pound on the Calgary market, little need be said about the profits of this valuable side issue of the Southern Alberta farm.

An enormous market exists in the province of British Columbia for poultry products, and this market is increasing every year. An egg gathering station is maintained at Calgary by the government, where the highest market price is paid for eggs, and from which periodical shipments are made to Western points. No less than



\$367,950 worth of poultry and eggs were imported to Calgary by jobbers alone during 1906 for distribution in Alberta and British Columbia points. It only remains for our farmers to go into the poultry business on a larger scale in order to have this money circulated in Alberta. Our climate is ideal for poultry raising, and our market the best in Canada. Many a Southern Alberta farmer keeps his grocery bill square with the products from his poultry; and yet little attention is given to improving his breeds, or to raising and feeding his domestic feathered friends. A fine opening exists for those who will undertake poultry raising on a scientific basis, and put really fine fowls upon the market. We need enthusiastic poultrymen as much as breeders of pure-bred horses, cattle and swine. One thing the poultry raiser here has, which his eastern associates do not have, is a good market all the year round. There is money in the business when rightly managed, and comfort, cleanliness, and good alfalfa and grain fields to fatten on, about comprise the requisites.

There is always a demand for chickens and eggs and many have found the business profitable, but whether it be on a large scale or not, the farmer's wife and daughters can always make good pin money with poultry.

Turkey raising has come to be an industry of importance. In parts of this section, where range is good, thousands of these birds grow and fatten for market in the coast cities, and thousands of dollars are brought into the country every year through this business alone. Where large areas of wheat stubble may be utilized for forage ground, the expense of putting turkeys upon the market is reduced to a minimum.

Markets

WHILE what has gone before has contained more or less information regarding the necessity of markets to this irrigation block, there is another phase of the question which must be taken into consideration.

Farm land values are largely governed by six things—climate, soil, moisture, settlement, railroads and markets. But the greatest of these is markets. No matter how ideal the climate, how rich the soil, how sufficient the rainfall, without markets for that which the land produces there will be found no settlement or railroads.

In support of the foregoing statement the lands of this great Western Canada may be used as an illustration. Lands that a few years ago could not be sold for a dollar an acre—in fact, they could

not be given away, are to-day attracting more people than any other agricultural section of the world. Here for centuries have been the climate, soil and moisture. But, possessing these three great natural advantages, it was still practically a desert. It was lacking that one great essential—markets. Here were millions of acres teeming with potential millions of wealth that were but awaiting the awakening touch of mankind to be added to the available wealth of the world. The awakening came slowly, and it was only after the promoters of the Canadian Pacific Railway had constructed that road, and spent years in educational work, that the world at large began to realize that here was a country possessing all the natural advantages claimed by older communities; that land here just as good or better, acre for acre, as their own could be had for almost the asking.

With the realization of the foregoing facts came the people, who found that a railway had preceded them and markets already existed for anything that they might care to raise. These markets are capable of great expansion, and assure to the agriculturist the prevailing prices of the world. An assured market means added value to every acre of land in Western Canada, and the near future will see lands that are now selling at exceptionally low prices begin to increase in value, just as they have in Eastern Canada and the United States during the past few years. For all of which, markets made possible by the railways, are responsible.



Educational

A VERY important matter to be taken into consideration when a settler is contemplating moving into a new country is that of educational facilities for his children. Alberta is particularly blessed in this respect, and educational facilities here are very thoroughly developed. Throughout the province, school districts and the little red school house are as common as they are in the United States or Eastern Canada.

In Calgary, the educational capital of Alberta, there are 2,000 children on the rolls. During the past year the number of teachers and scholars has increased 25 per cent. Vast improvements in the way of new buildings have taken place in the last few years. The new Central School, which cost \$70,000, was opened in May, 1905. The South and East Ward Schools, costing \$70,000 and \$20,000 respectively, have been opened in the last year. The latter two were built of solid Calgary sand-stone, and would do credit to any city in the land. There are twelve public schools in Calgary with a staff of 24 teachers, who are selected with great care from hundreds of applicants, all of high standing. The equipment is thoroughly up-to-date, and with Dr. A. Melville Scott, of the University of New Brunswick, at their head, are doing as efficient work as is found anywhere in the largest cities. Manual training is also taught, and by a thoroughly competent instructor.

The High School is complete in every essential, and compares favorably with similar institutions in Eastern Canada or the States. The courses include all subjects usually taught in such schools.

The Provincial Normal School, to cost \$150,000, and at present in course of construction, will be one of the finest normal schools in Canada.

The Western Canada College for boys is a credit not only to Calgary, but to Western Canada. \$25,000 has already been spent on the buildings, and the grounds comprise 20 acres, planted to several hundred trees.

St. Hilda's College for girls has cost in the neighborhood of \$10,000, and the grounds comprise half a block.

St. Mary's Convent has no less than 235 students in daily attendance, 60 of them living and boarding at the school. Fourteen teachers are employed in art, music and the regular educational work. First class certificates are obtained here by pupils, and matriculation work will be undertaken at an early date.



Central Public School, Calgary.

Calgary—The Commercial Metropolis

THE Bank Clearings of Calgary for October, 1906, were \$5,690,414.00—larger than Victoria, B.C., St. John, N.B., Lincoln, Neb., or Davenport, Iowa—places twice or thrice the size of Calgary, and they were nearly twice as large as that of Edmonton.

Customs receipts at various Alberta points from 1896 to 1904 were \$1,095,421.17, of which Calgary furnished 35.4 per cent.

Calgary's gross postal revenue for the past year was \$53,408.00, 32 per cent. of all Alberta.

In several of Calgary's thirteen busy banks, there are from twelve to sixteen clerks employed, and the stone business blocks, churches, etc., would do credit to any modern city.

Steam Power and Fuel.

No western point equals Calgary as a fuel supply centre. Extensive beds of coal surround the city on all sides, and the available coal ranges in quality from soft lignites to the best of anthracite. The Canadian Pacific Railway Company have large anthracite mines at Bankhead, only 80 miles west of the city, insuring a constant supply of hard coal. Bituminous coal is also mined at Blackfoot, Fish Creek, Sheep Creek and Knee Hill, all in the vicinity of Calgary. The Knee Hill is an excellent domestic and steam coal, and will doubtless be placed on the market at a very low price.

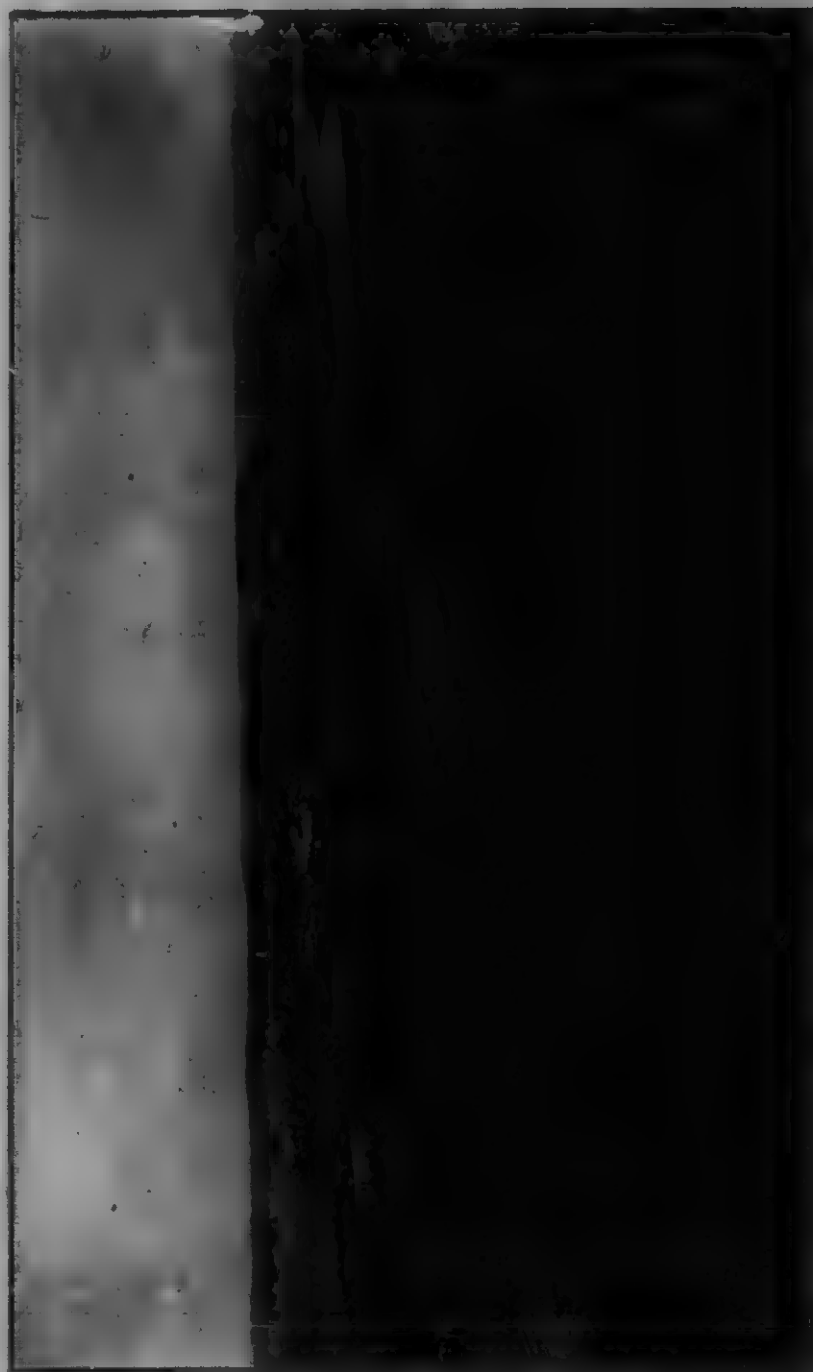
The boring for natural gas in the vicinity of Calgary is progressing favorably, and every hope is entertained that gas will be obtained in the near future. Coal gas is already manufactured here.

Cost of Living.

Living in Calgary is as cheap as in other portions of Canada, and labor is readily obtained. There are as many industrial opportunities to-day as there were in St. Paul, Toronto, Chicago or Montreal a few years ago.

Railroads.

More railroads are projected into Calgary than to any point west of Winnipeg. Within two years it will be entered by the Great Northern, Canadian Northern, and the Grand Trunk Pacific Railways. It is a general divisional point of the Canadian Pacific Railway, and the lines for Edmonton and Macleod start from here. The annual



The City of Calgary from North-east.

pay roll of the Canadian Pacific Railway at Calgary is considerably over a million dollars and they employ fully 1,000 men.

Rural Telephones.

Irrigation means the cultivation of smaller tracts of land than is practised in districts where dry farming prevails. This fact means closer settlement and a social life unthought of under the old system of farming. With closer settlement and greater social advantages there are other benefits which follow in their wake. One of the advantages awaiting the coming of the settler in this irrigation block is the public telephone.

In the construction of this irrigation system it was necessary to erect a telephone line between the various engineering headquarters and Calgary. The Bell Telephone Company of Canada are going to put in an exchange and connect this line with their system, which will give to the block all the advantages of the long distance telephone and at rates much lower than charged by any public telephone company.

Public telephones ready for the use of farmers immediately upon the occupancy of their land is certainly a unique innovation in the colonization and settlement of a new country.

What it means in a home or in a neighborhood the farmer is better able to appreciate than those who live in the city. It frequently means to him the saving of a long drive to a neighbor's or to town, and in case of an accident it may mean the saving of a life in the calling of a physician.

Buy Land Now

THE pendulum of prices on most commodities swings backwards and forwards. This is not true in reference to land. To-day the pendulum is swinging outward in land prices everywhere and going toward a higher point each year. The experience of those fortunate enough to purchase land in the last three years verifies this assertion.

If any individual wants land he should buy it while he or she has a chance to do so at low prices and on easy terms. Land everywhere is becoming dearer every year. Many thought it was too high five and ten years ago, and on that account refused to buy a home, thinking land would become cheaper. Now they see their error. It is not too late, however, for there are still a few opportunities left.



Main Business Street, Calgary.

and only a few, to buy good cheap lands and get in on the rapid rise of land values in the next few years.

Nothing can check the upward march of land values. All products that sustain life must grow. The more people to be fed, the greater will be the demand for the place on which to raise the products to feed them. The wise investor is the one who looks ahead and studies the country's problems and plans for the future.

Cheap land under cultivation, in many instances, is paying from 20 to 30 per cent. annually from crops alone and fully as much on the rapid rise in land value. Thirty years ago a farmer was considered successful if he cleared 6 per cent. on his investment, but to-day the modern farmer with his modern methods frequently clears from 20 to 30 per cent., and some make even more than this. The telephone and better roads have brought the farmer out of isolation and placed him in close contact with the outside world, making farm life attractive.

Our idea in urging people to buy land now is to get them to reach up to their opportunities and invest in a business with which they are familiar. If it has proved profitable for capitalists and men engaged in various enterprises to buy land, why should it not be profitable for the farmer? Farm lands for farmers should be the slogan, for where the profit lies there he should invest. Stick to land. Many farmers go to the wall through engaging in enterprises outside of their line.

No line of business can stand a financial depression better than farming. The liquidation of farm mortgages in the last ten years has shown to the world the prosperity of the farmer and the value of farm land as an asset.

We want to urge those who can do so to buy land now. Get all that you can while it may be bought cheap. Buy as much as your funds will permit, but get some, if only a small farm. In buying for a home or as an investment the buyer should lay stress upon six things, viz.: Good climate, fertile soil, water supply, available markets, and land suited for special or for mixed farming.

Prices and Terms on which Lands Are Sold.

The only lands at present offered for sale by this company are situated in the Western Section of the irrigation block, and consist of irrigable and non-irrigable areas.

The non-irrigable areas are suitable for the growth of winter wheat, which does well without irrigation, and the grazing of stock of all kinds.

The irrigable lands are suitable to the growth of all the crops previously mentioned, and when desired are sold in conjunction with non-irrigable areas, so as to provide the ideal farm for mixed farming and dairying.

Realizing the traffic these lands will produce, when fully settled, the company is selling them on terms so liberal that they practically come within the reach of anyone of limited means who is seriously considering the purchase of a farm.

The best quality of non-irrigable lands are being sold at \$15 per acre, and irrigable areas at \$25 per acre.

The price charged for irrigable lands includes a water right for the land purchased, but the land is charged with an annual rental of fifty cents per acre towards the cost of maintaining and operating the canals to deliver water to the land.


The purchaser of irrigated lands gets an absolute guarantee of water for his irrigation, and a title both to land and water far superior to anything which has heretofore been given in irrigation districts on this continent.

The Canadian Pacific Railway, with its vast resources, has prepared on this great irrigation tract homes for 150,000 people. It is now inviting the world to take advantage of the greatest opportunity that was ever offered to the agricultural class.

On this vast tract you can obtain a home, or an investment, which will make you rich within a very short period of time; it will bring a constant income, ever-increasing for your life and your children's lives.

The records show that the values of irrigated lands rise faster than the values of unirrigated lands, and when you make up your mind to invest in a farm, you should not only consider productiveness of the soil, but you should also take into consideration the possibilities of an increase in value of that farm. The greatest fortunes that America has produced were built by people who dealt in real estate. The fact should not be lost sight of that fortunes invested and made in real estate are the most stable of any riches that can be gathered.

On the great Canadian Pacific irrigated tract in Southern Alberta, in a few years, will be gathered together thousands upon thousands of men who have struggled in Eastern Canada and the United States to acquire a competence, but who failed in many instances because of the non-productiveness of the land which they were working and the droughts they have experienced. There can be no failure under irrigation in Sunny Southern Alberta, because the land is of the very highest quality, the climate is good, the rainfall is sufficient of itself to produce enough moisture to raise reasonably good crops, crops





St. Mary's Cathedral, Calgary.

which would be considered enormous elsewhere; and when we add to these natural advantages, the advantages of irrigation, we have formed a combination that assures the man who places seed in the soil that he will reap a bountiful harvest. With good markets at his very door, what is there to prevent any man who has ability to labor from getting rich?

The great influx of Americans and Eastern Canadians which is bound to take place during the next few years will increase enormously the value of these lands, and every man who invests now will reap the benefit of that rise. This country is to be peopled with good substantial citizens, who come with the same purpose in view that influenced you, who will do practically the same things you will do, who will make as good neighbors as the neighbors you have to-day and who will form a citizenship you will be proud to live among.

The laws in Alberta are practically the same as the laws in Eastern Canada and the United States. The facilities for educating your children are fully as good as the facilities you now enjoy. Then what valid reason can you offer why you should not come to Alberta?

Let us consider the case together. Supposing you are a man who is struggling to pay off the mortgage on your farm, the money does not come in very fast to wipe out the debt, not nearly so fast as you would like to see it. Why not sell your farm, take the equity it produces and go to Southern Alberta, where you can buy one equally as good and, if you have a "dry farm," better. Supposing you own a farm which is paid for, which is worth \$50, \$75, \$100 or \$150 an acre. It is not producing a reasonable rate of interest on the investment. Why not go to Alberta, where you can secure three to five times as much in crops as you are now producing?

No matter what your condition, whether you be rich, or poor, you can better that condition on the great tract of irrigated lands which is now open for settlement in Southern Alberta.

We want you in Alberta, not so much for the money you will bring to invest in lands, but because we want you to develop the country. Every Canadian interest is working together at this moment and will continue to work for the benefit of the settler. The government wants you to come because it wants to secure more citizens and develop the western part of this vast country. The railroads want you to come because through your efforts they will increase their traffic. The people want you to come because they want good neighbors, and they know they can get the best from the United States and Eastern Canada, because the most of them came from there themselves.

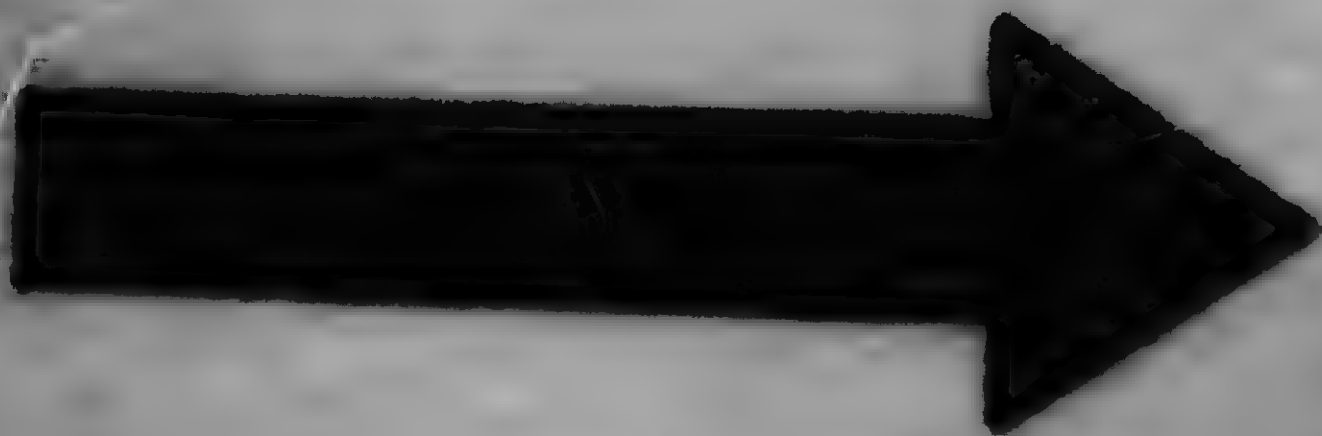
It is said that "Opportunity knocks once at every man's door." You may not know it, but opportunity is knocking at your door right now. It has come to you unsolicited without an effort on your part, in this offer of a new location in Southern Alberta. Other people, to further the interests of Canada, have built here a home for you, and by this great system of irrigation have assured you crops, year in and year out, no matter how long you stay. These people are now inviting you to come and be one of them in Sunny Southern Alberta. Are you going to accept the invitation?

For full and detailed information regarding land in the irrigation project referred to in the preceding pages, apply to the Canadian Pacific Irrigation Colonization Company, Calgary, Alberta; and for any further facts regarding the project, apply J. S. Dennis, Superintendent of Irrigation, Canadian Pacific Railway Company, Calgary, Alberta, Canada.

Customs-Free Entries

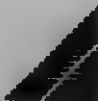
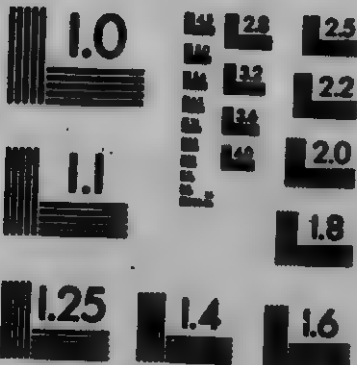
THE following is an extract from the Customs Act of Canada, specifying the articles that can be so entered:—
Settlers' Effects, viz.: Wearing apparel, household furniture, books, implements and tools of trade, occupation or employment; guns, musical instruments, domestic sewing machines, typewriters, live stock, bicycles, carts and other vehicles, and agricultural implements in use by the settler for at least six months before his removal to Canada; not to include machinery or articles imported for use in any manufacturing establishment or for sale, also books, pictures, family plate or furniture, personal effects, and heirlooms left by bequest; provided that any dutiable articles entered as settler's effects may not be so entered unless brought with the settler on his first arrival, and shall not be sold or otherwise disposed of without payment until after twelve months' actual use in Canada; provided also, that under regulations made by the Comptroller of Customs, live stock, when imported into Manitoba, Saskatchewan or Alberta by an intending settler, shall be free until otherwise ordered by the Governor in Council.

Settlers arriving from the United States are allowed to enter stock duty free in the following proportions: One animal of neat stock or horse for each ten acres of land purchased or otherwise secured upon homestead entry up to 160 acres, and one sheep for each acre so secured. Customs duties paid on animals brought in excess of this proportion will be refunded for the number applicable to an additional holding of 160 acres, when taken up.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1053 East Main Street
Rochester, New York 14609 USA
(716) 482-0300 - Phone
(716) 308-5888 - Fax



Central Methodist Church, Calgary.

The settler will be required to fill up a form (which will be supplied to him by the customs officer on application) giving description, value, etc., of the goods and articles he wishes to be allowed to bring in free of duty. He will also be required to take the following oath:—

"I, do hereby solemnly make oath and say, that all the goods and articles hereinbefore mentioned are, to the best of my knowledge and belief, entitled to free entry as settler's effects, under the tariff of duties of customs now in force, and all of them have been owned and in actual use by myself for at least six months before removal to Canada; and that none of the goods or articles shown in entry have been imported as merchandise or for use in manufacturing establishments, or for sale, and that I intend becoming a permanent settler of the Dominion of Canada.

"Sworn before me at day of..... 190 "

The following oath shall be made by intending settlers when importing live stock into Manitoba, Saskatchewan or Alberta free of duty:—

....., do solemnly swear that I am now moving into Manitcha, Saskatchewan or Alberta with the intention of becoming a settler therein, and that the live stock enumerated or described in the entry hereunto attached is intended for my own use on the farm which I am about to occupy (or cultivate), and not for sale or speculative purposes, nor for the use of any other person or persons whomsoever."

Importation of Animals from United States and Newfoundland.

All animals imported into the Dominion of Canada from the United States and Newfoundland must be accompanied by a statutory declaration or affidavit made by the owner or importer, stating clearly the purpose for which said animals are imported—whether for breeding purposes, for milk production, for work, for grazing, feeding or slaughter, or whether they form part of settler's effects, or whether they are entered for temporary stay, as provided by these regulations.

Said declaration or affidavit must be presented to the Collector of Customs at the port of entry, who will decide whether the animals are entitled to entry under these regulations, and who will notify the Veterinary Inspector of the Department of Agriculture in all cases where the regulations require an inspection to be made.

Horses, mules or asses forming part of settler's effects shall be inspected and should be accompanied by:—



Holy Cross Hospital, Calgary.

(a) A satisfactory certificate of mallein test dated not more than thirty days prior to the date of entry, and signed by an inspector of the United States Bureau of Animal Industry; or

(b) A similar certificate from a reputable veterinarian, provided such certificate is endorsed by an inspector of the said Bureau of Animal Industry; or,

(c) A similar certificate from an inspector of the Canadian Department of Agriculture.

If not so accompanied, such horses, mules or asses may be submitted to the mallein test by an inspector of the Canadian Department of Agriculture at any time after their arrival in Canada. If found to react within a period of six months of date of entry they will be destroyed without compensation.

If on inspection at the boundary, glanders is found in any consignment, all animals comprising it shall be returned to the United States, but non-reactors may be again presented for entry and further test, after the lapse of a period of not less than fifteen days from the date of the first test, provided that satisfactory evidence is produced to the effect that they have not, during the said period, been in contact with other animals.

Horses, mules or asses found to be, or suspected of being, affected with any contagious disease, may be returned to the United States or otherwise dealt with as the Veterinary Director may order.

Quarantine of Settler's Live Stock. Cattle.

Settler's cattle, when accompanied by certificates of health, signed by a veterinary of the United States Bureau of Animal Industry, dated within thirty days before their arrival at the Canadian border, are admitted without detention; when not so accompanied they must be inspected. Inspectors may subject any cattle showing signs of tuberculosis to the tuberculin test before allowing them to enter. Any cattle found tuberculous to be returned to the United States or killed without indemnity.

Sheep.

Sheep for breeding or feeding purposes may be admitted by a certificate of inspection to port of entry, and must be accompanied by a certificate, signed by a Government inspector, that sheep scab has not existed in the district in which they have been fed for six months preceding the date of importation. If disease is discovered to exist in them, they may be returned or slaughtered.

Swine.

Swine may be admitted when forming part of settler's effects, but only after a quarantine of 30 days at the border, and when accompanied by a certificate that swine plague or hog cholera has not existed in the district whence they came for six months preceding the date of shipment: when not accompanied by such certificate, they will be subject to slaughter without compensation. We do not advise bringing swine to Alberta.

Freight Rates on Settlers' Effects from Principal Points in United States to Calgary.

PORTLAND, OREGON, VIA SUMAS, B.C.	
Carload lots of 24,000 lbs.	\$153.60
Less than carload lots	1.50 per cwt.
CHICAGO, VIA N. PORTAL, SASK.	
Carload lots of 24,000 lbs.	\$72.00
Less than carload lots	0.90 per cwt.
KANSAS CITY, VIA N. PORTAL, SASK.	
Carload lots of 24,000 lbs.	\$91.20
Less than carload lots	1.15 per cwt.
OMAHA, VIA N. PORTAL, SASK.	
Carload lots of 24,000 lbs.	\$88.80
Less than carload lots	1.10 per cwt.
ST. PAUL, VIA N. PORTAL, SASK.	
Carload lots of 24,000 lbs.	\$45.00
Less than carload lots	0.67 per cwt.
DENVER, VIA ST. PAUL AND NORTH PORTAL, SASK.	
Carload lots of 24,000 lbs.	\$169.60
Less than carload lots	2.52 per cwt.
NEW YORK, VIA BUFFALO.	
Carload lots of 24,000 lbs.	\$264.00
Less than carload lots	1.72 per cwt.
BUFFALO.	
Carload lots of 24,000 lbs.	\$156.00
Less than carload lots	1.24 per cwt.
QUEBEC.	
Carload lots of 24,000 lbs.	\$148.80
Less than carload lots	1.24 per cwt.
MONTREAL AND TORONTO.	
Carload lots of 24,000 lbs.	\$136.80
Less than carload lots	1.14 per cwt.







